AXIOMATIC SEMANTICS

A Theory of Linguistic Semantics

Sándor G. J. Hervey

SCOTTISH ACADEMIC PRESS

Axiomatic Semantics is a clinical and dispassionate statement of a structuralist theory of linguistic semantics developed within the framework of Axiomatic Functionalism. The overall approach of Axiomatic Functionalism is, itself, a unique approach among modern schools of linguistics, by virtue of its individual and highly sophisticated attitudes to the philosophy of science. It is a complete integrated theory deductively derived – in the form of theorems – from a small set of axioms and definitions, and has a rigorous deductive structure. By its rejection of inductivism and speculativism, coupled with the firm belief that language-specific descriptions must be dependent on the prior principles of an explicit, semiotically based linguistic theory, it presents a viable alternative to major current schools of linguistics.

Axiomatic Semantics outlines a vital component in the integrated theory of Axiomatic Functionalism. It is not a semantic theory half-heartedly tagged on to an approach designed to cover grammar and phonology but a fully co-ordinated part of a linguistic theory that regards these aspects as equally important. The semantic theory develops an original philosophical and semiotic view of "linguistic sign" and of "linguistic meaning". A consequence of this view – apart from a consistent and adequate solution to problems of sign-identity (i.e. when to set up homonyms and synonyms in a description) – is an original approach to the "mapping" of signs onto those "areas" of experienced reality that they may be used to convey in communication. This mapping is illustrated by an exploration of the semantic structure of a number of lexical sub-systems of Pekingese: the sub-system of words denoting "beauty", the sub-system of words denoting the action of "going on foot", of words denoting "ways of dieing", and that of kinship terms.

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A theory of linguistic semantics

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1979

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IN MEMORY OF MY FATHER

Foreword

The history of linguistics, up to the middle of this century, has been characterized by a continuous increase in sophistication on the one hand, and a periodic shift of interest or focus on the other. Globally speaking we may say that the first period, from the Greeks to the late Middle Ages, was the period of the gradual development of what nowadays we call Traditional Grammar. Linguistics was not an independent discipline, but was part of Philosophy. The interests of linguists were usually in the first place philosophical, and, if they were not, the point of view on which decisions were based was, in any case, a philosophical one. The starting-point was conceptual rather than linguistic, i.e. the question was rather how concepts and meanings were communicated, than how linguistic expressions were connected with experiences in the outside world. With a few exceptions, the only languages considered worth studying linguistically were Greek and Latin.

The Renaissance was the period of voyages and world-exploration. With this came an awareness of the diversity of tongues and a practical need for some people to master foreign and even exotic speech. This gave a new impulse to linguistics by widening the linguistic horizon. Even polyglossia became an aim in itself, but this situation did not lead to freeing linguistics from the philosophical and semantic bias that characterized the earlier period. On the contrary, descriptions of languages remained fixed in the older traditions, and followed the pattern of Greek and Latin grammars, rather than languages being described as semiotic systems in their own right. This was quite possible and remained perfectly satisfactory *because* of the semantico-philosophical bias of Traditional Grammar. In many ways, though deplorable from a scientific point of view, this was even a great asset. Traditional Grammar could remain the *lingua franca* of linguistics, as it still is nowadays to a large extent. This, for instance, greatly facilitates the teaching of languages in schools, and also introduces an element of constancy in this teaching, as more scientific approaches inevitably change over the years.

The third period of linguistics saw the gradual emergence of linguistics as an independent discipline. It started sometime in the eighteenth century. The influence of Traditional Grammar was still important, and there were no great advances in sophistication of methods, except in the area of phonetics, but the aim of linguistic studies was no longer primarily a philosophical one, nor was it mainly practical, as was often the case during the previous period. One may even say that during that period the mainstream of linguistics deserved to be called scientific, in that it followed the general tendency prevailing in several of the sciences, i.e. that of using a historically based approach. In the beginning of the nineteenth century, especially under the influence of Saussure, and, later, in a different way, of Bloomfield, the focus of interest began to shift from comparative to synchronic and systemic. This was the dawn of structuralism in linguistics. Unjustly, it became soon, in the eyes of many, less respectable to occupy oneself with comparative and historical linguistics, and the latter remained stunted in their development. But structuralist linguistics, which should merely have been a sister-discipline of historical linguistics, albeit perhaps the scientifically more interesting of the two, flourished enormously. There were, almost from the start, two quite different philosophical attitudes towards structural descriptions. The one, Saussurian and Continental, was largely hypothetico-deductive. This approach was, in the beginning, somewhat psychologically orientated, and was rightly condemned by Bloomfield as being mentalistic. Since the early thirties, however, mentalism was gradually abandoned, so this charge was no longer relevant. Linguistics in the United States, on the other hand, was inductive, often almost naive realist. It was mechanistic, and based itself on a non-mentalistic form of psychology: behaviourism. The aversion to mentalism led to the abandonment of all considerations that had to do with "meaning", thus sowing the very seeds of the ultimate virtual destruction of the approach. Linguists, after all, cannot remain for long, as I shall argue below, uninterested in the relation between forms and their communicanda. Until the thirties there was much cross-fertilization between American and European linguistics, but after that the influence became rather one-sided, as American linguists tended to develop a slightly arrogant attitude towards European linguistics, which they termed unscientific, mainly because it was not inductivist and mechanistic. I am still, of course, oversimplifying, and I am also leaving developments in

Britain out of consideration, as, though interesting in themselves, these were too home-based to be of great historical significance.

The Second World War gave an extra boost to American linguists. The reason was that suddenly there was a great demand for instructors in various, including exotic, languages. Bloomfieldian linguistics had its origin in anthropology and ethnology, and close contact with, and knowledge of, various languages was part and parcel of its inductivist philosophy. Unlike European linguistics, it was not mainly theory-orientated. This made linguists in the United States a valuable commodity for the War Department. But to European linguistics the Second World War meant a set-back of at least five to ten years. All this led to an even greater gap between America and Europe, and few American linguists even took the trouble to remain informed about what was going on in Europe. When Hjelmslev's 1943 work, *Omkring sprogteoriens grundlaeggelse*, was finally translated in 1953 by Whitfield as *Prolegomena to a theory of language*, the gap had already become so immense as to prevent this work from making any impression at all. Other prominent European linguists, such as Jakobson and Martinet, were already in, or had gone to, the United States, but this only led to there being a European representation. It did not result in any important degree of cross-fertilization with Bloomfieldian linguistics, in spite of the fact that, for a short time, European linguistics had a forum in a society, The Linguistic Circle of New York, and its journal, *Word*. Yet Martinet carried on with his work in the Troubetzkoyan tradition of the Prague school, and by the time of his return to Paris in the fifties he had laid the foundations of what we now call functionalism.

There was yet another tendency prevailing in the United States, namely a preoccupation with rigour in presentation and with formalism. European linguists, regrettably, took little interest in rigour. The situation was, in my opinion, as follows: in America unsound foundations with considerable rigour, and in Europe good foundations, but, with the exception of the Hjelmslevians, almost total lack of rigour and logical reasoning. But in the fifties and early sixties changes were in the air. Independently of each other, both in America and in Europe, linguists became aware of the possibilities there were in formal logic for attaining greater precision of statement. Thus far, American representational techniques had, on the whole, not been based on logical formulae, but now this was going to change. Especially set-theory became important in this respect. And

also, under the influence of Chomsky, the theory of algorithms became all important. As America was already formalization minded, this tendency towards rigour immediately caught on in the United States. In Europe there were only some isolated attempts, and one hardly ever went so far as to come to completely formalized presentations. That is, form*a*lization, or rather form*u*lization, has remained largely ancillary, and this is as it should be in my opinion. Axiomatic functionalism, the basis of the present work, is an example of this on a large scale and it adheres to form*a*lization, rather than form*u*lization.

It is sometimes said that the Chomskyan advance marks yet another period in the development of linguistics, but this is highly debatable. Chomskyanism marks a return to the situation before the eighteenth century. That is, it undoes the independence of linguistics from philosophy. It can even be regarded as putting linguistics one step further back, as it also tends to involve a narrowing of the linguistic horizon to almost exclusively English, and it is unashamedly speculative. It was an understandable reaction against Bloomfieldian linguistics, because of ignorance of the existence of anything else, hailed as a reaction against the *whole* of pre-existing linguistics. But Chomskyanism has not been able to replace Bloomfieldian linguistics – even though the latter had to make important adaptations in order to stay alive – let alone to have any effect at all on European linguistics in general and functionalism in particular. Of course, there have been non-academic effects, such as sucking energy away from other areas of research, delaying publications, such as that of the present work, by creating the impression that there is no worthwhile linguistics other than transformational linguistics, but the signs are that this is now changing. Chomskyanism, rather than marking an advance, marks a shift in attitude and interest, and a backward step from whose effects every other linguistic approach has suffered as well.

But in one respect the generative movement has had a beneficial effect. It has revived the latent interest in semantics that linguists naturally have. Unfortunately, the semantics developed within the framework of generative linguistics, especially generative semantics, cannot have any appeal to descriptive linguists. It may be interesting to philosophers, professional as well as dilettante, but what is the relevance to linguistics of arbitrary, albeit perhaps appropriate, conceptual universal semantic representations and their translation into surface structures? This is, in my opinion, all that generative seman-

tics really boils down to. I believe that the present decline in popularity of generative linguistics is mainly due to the fact that generative semantics – which is itself a logical progression of the ideas earlier introduced by Chomsky in his Aspects model and related publications, has become uninteresting for true linguists, and too dilettante for the taste of philosophers. In this respect, Sándor Hervey's work, which is vastly different, and does not have the remotest connections with universalism and speculativism, is really refreshing.

It is, perhaps, unfortunate that philosophical semantics and linguistic semantics are generally called by the same name: semantics. One of the first things that strikes pure linguists when they consult works on so-called linguistic philosophy, is that, though very interesting, the philosophers' views of language are extremely naive. I believe that philosophers can find in Hervey's work some basic concepts that can completely remedy this. On the other hand, there will be much in Hervey's work that is irrelevant to them, and there will also be much of relevance that they will not be able to find in this volume. Hervey does not attempt to be a linguistic philosopher, nor a philosophical linguist, such as perforce all universalists are to a certain degree. What one finds in the present volume is linguistic semantics, pure and simple, and all of it is of interest to the pure linguist.

In an integrated linguistic theory, in my opinion, one finds an integrated treatment of two questions that interest linguists, i.e. "how are linguistic objects (phonemes, phonotagms, words, syntagms, etc.) systemically deployed?", i.e. "how are they to be analysed or combined, and in what constructional relation do they stand to each other?", and, secondly, "how are linguistic objects of certain kinds deployed with respect to actual communication?". The former, which I like to call systemology, is the traditional area of linguistics as a structuralist discipline, no matter whether one follows the Saussurian or the Bloomfieldian tradition. The latter is the area of semantics. Apart from this there should be, for a really scientific approach, an ontology, i.e. a sub-theory in which the precise nature and status of linguistic objects is established. This is, in Axiomatic Functionalism, provided by the signum-theory, formerly called sign-theory. It is possible to have sign-theory and semantics without systemology, but this would not constitute a theory interesting to linguists. It is also possible to have a sign-theory and systemology, without semantics. Though not devoid of interest, such a theory would be incomplete,

and by many linguists discarded as soon as another theory became available that would better satisfy their professional curiosity in that respect. This happened to Bloomfieldian linguistics in the early sixties. Of course, I do not take theories without a proper ontology into consideration – and transformational grammar is one of the many such theories – as these are *a priori* unscientific from a philosophical point of view.

Sándor Hervey has managed to develop a theory of semantics in complete consistency with the rest of Axiomatic Functionalism, thus adding a vital component to that theory. With this sub-theory the three "legs" that every integrated theory must have are complete, and thus we have a fully integrated approach to the full description of any language or other semiotic system – perhaps the first *really* integrated approach in the history of linguistics. Noteworthy in the whole of the approach is that systemology and semantics, in spite of their being consistent with one another, and integrated via the signum-theory, are wholly independent of one another. There is, therefore, no question of an interpretive semantics, *versus* a generative one, or any other such problems that present-day linguists waste their time on. Both systemology and semantics are, when applied to a natural language, or any other semiotic system, descriptive, but from quite different points of view. Systemology describes semiotic systems in terms of the *internal deployment* of their elements, whereas semantics describes these in terms of their *external deployment.*

Hervey's contribution not only marks an important advance in Functionalism in general, and Axiomatic Functionalism in particular, but also in Linguistics in general. I believe it is the first wholly consistent, scientific and purely linguistic semantic theory to be developed. This is not to say that this is the end of the road. The next part of semantics that needs to be developed is what I should like to call constructional semantics, i.e. an attempt to predict the denotation of complex linguistic signs from the denotations of their constituents, plus the constructional relations between them.

JAN W. F. MULDER

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My main thanks go to Professor J. W. F. Mulder whose role in the development of my semantic theory has ranged from that of supervisor, to that of devil's advocate and powerful catalyst.

I wish also to thank all my colleagues and students with whom I discussed my ideas, and whose suggestions and criticisms were of great value to me.

Introduction

In spite of the recent spate of publications on the subject of semantics, this field of linguistic theory remains the most obscure, the most difficult, and the least developed of all branches of linguistic enquiry. This is not to say that there are no "established" schools of semantic theory, nor that there are no wide trends in semantics that act as if they had a tacit claim to being uniquely "on the right track". In broad terms, various types of logico-semantics – characteristically approaching the notion of "meaning" in natural language through the notion "proposition" (for instance in terms of the recently fashionable "presupposition") – appear to have appropriated for themselves a position of "dominance".

In such a climate, the presentation of a semantic theory which is on completely different lines from other current trends – and "axiomatic semantics" is just such a theory – may give rise to a dilemma. Should the author of such a theory honour the claims of current theories to "dominance", and adopt a polemic approach, preparing the ground for launching his theory by directly and specifically challenging existing theories? Or should it merely suffice for him to develop, in a clinical and dispassionate manner, the notions and methods he intends to propose, leaving it to critical readers, and to himself in other publications, to draw comparisons between alternative theories?

In the presentation of "axiomatic semantics" I have opted, for the most part, for the second course of action – a straightforward and matter-of-fact statement of the theory. It strikes me as worthwhile to outline some of the reasons that justify my decision to avoid a polemic approach at the risk of appearing to ignore (or even to be ignorant of) current semantic theories.

Firstly, I must admit to being far more interested in the potential positive virtues of "axiomatic semantics" as a theory for use in the semantic description of languages, than in the potential negative qualities of other semantic theories. Straightforward development of "axiomatic semantics" would be bound to suffer if too much space

were devoted to critical comparisons or to polemic. In any case, the former is a task more suitable for others who can bring a degree of objectivity to the comparison (something that could not be expected either of me or of ardent partisans of rival theories), and the latter would be less out of place in other publications specially designed for the purpose.†

Secondly, while long-established theories in the natural sciences (such as, say, Newtonian physics) may have to be "overthrown" before a new theory can gain acceptance, this situation can hardly be paralleled in linguistics. No theory in the history of modern linguistics, let alone a semantic theory, has ever been sufficiently strongly, sufficiently generally, or sufficiently long established to prevent the launching of new theories *without reference to* earlier ones. In other words, no semantic theory has hitherto proved itself so firmly and generally established as to present an obstacle to the launching of a new semantic theory to be judged simply on its own merits. Apart from anything else, one would be hard put to decide which of the many current rival semantic theories to "overthrow" in launching a semantic theory which differs from them all, as "axiomatic semantics" does. A comparative treatment of all these theories‡ would require a tome all to itself – a task which I shall not embark on, even if I am to be accused of ignoring much of current research in semantics.

Because of its very individual character "axiomatic semantics" might, in a facile manner, be dismissed as not being in keeping with "modern interests" in semantic study (whatever this may mean). However – and this takes me to the third point that justifies a straightforward presentation of my theory – "axiomatic semantics" does not hang in an intellectual vacuum, but is a proper subdiscipline of an integrated theory of "axiomatic functional" linguistics.§ Thus the semantic theory is not developed without reference to research cur-

† See, for instance, my articles "Reflections on J. J. Katz, 'The semantic component of a linguistic description' [in Katz 1970]", *Lingua*, 31, 1973; "Grammar and semantics in 'Axiomatic Functionalist' linguistics", *Lingua*, 36, 1975; "Is deep structure really necessary", *Lingua*, 39, 1976; and "Semantics in Axiomatic Functionalist Linguistics", *Proceedings of the Deuxième Colloque International de Linguistique Fonctionelle*, Clermont-Ferrand, 1975.

‡ An additional complication here is that the very criteria for relative evaluation of competing theories figure prominently among the articles of controversy between rival linguistic schools.

§ For publications in "axiomatic functionalism" see Bibliography of Axiomatic Functionalist Linguistics, at the back of this book, pp. 309–310.

rently in progress, where such research is relevant. On the contrary, it represents the detailed working out of a thesis whose articles are tacitly implied in the basic axioms and definitions of a self-contained and integrated linguistic theory.

The linguistic theory of "axiomatic functionalism" is a *deductive* theory whose major tenets – the axioms and key definitions – have been developed chiefly by J. W. F. Mulder (with some degree of collaboration from his students, myself included). That the theory is deductive, means that its theorems are arrived at by a deductive strategy from, ultimately a small handful of, basic premisses that are made explicit *ab initio*. Whether such a strategy, reminiscent of Hjelmslev's, is found to have appeal to linguists at large or not, the fact remains that a deductive theory, and proper parts of that deductive theory, are primarily answerable to *internal* considerations in the matter of evaluation – and only ultimately, and indirectly, to the difficult matter of "relative merit" between rival theories. The internal considerations that are of *prime* importance in the assessment of a deductive theory such as that of "axiomatic functionalism" are those of *consistency* and *adequacy*.† The primary questions one should ask in the evaluation of the theory are, accordingly,

(*a*) is the theory self-consistent, and are its parts valid deductive conclusions from basic premisses, as well as being consistent with one another;

and

(*b*) does the theory provide a useful and satisfactory framework for consistent, exhaustive and neat descriptions of individual languages?

External considerations of comparison – in any case highly controversial and often subjective – of the theory to other, especially largely alien, theories must be relegated, being of doubtful value,‡ to a relatively unimportant position.

What is true here of the whole of "axiomatic functionalist" theory will hold, *mutatis mutandis*, for "axiomatic semantics" as a proper

† See especially J. W. F. Mulder, "Linguistic theory, linguistic descriptions and the speech phenomena", *La Linguistique*, 11, 1, 1975, and J. W. F. Mulder and S. G. J. Hervey, *The strategy of linguistics*, Scottish Academic Press (forthcoming).

‡ It is of dubious value to compare theories that are, by their very nature, unrelated to one another. Unless strict standards can be agreed upon whereby such theories become rigorously comparable, such comparisons are liable to be made on grounds of personal preference or of some largely unspecified bias.

sub-theory of the overall theory. In other words, of prime importance is the *consistency* of "axiomatic semantics" both with the basic premisses of "axiomatic functionalism" – from which it must be deducible – and within itself. It is this consideration which has acted as the guiding principle in the way I have presented Part I of the book – the presentation invites examination of the logical consistency and deductive structure of "axiomatic semantics" as a body of theorems and definitions within "axiomatic functionalist" linguistic theory, rather than seeking direct comparison with other, unrelated, approaches to semantics.

Also of importance, of course, is the *adequacy* of "axiomatic semantics" for use in semantic description. Not only sections of Part I, but the whole of Part II are devoted to illustrating the descriptive potential of the semantic theory.

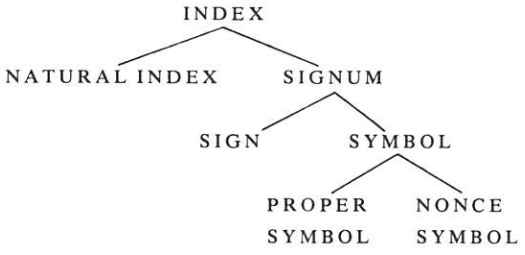
Because of the special relation that holds between "axiomatic semantics" and Mulder's "axiomatic functionalist" linguistic theory, it is particularly important in this Introduction to call attention to those parts of Mulder's theory which are of immediate relevance to "axiomatic semantics". As we are dealing here with a single integrated theory, I have, naturally enough, relied throughout on Mulder's phonological theory (Mulder 1968) on all points where it was relevant to my own theory, and have made use of his phonological notation of English and of Pekingese in my examples. But this "borrowing" of notions by one subdiscipline of the theory (semantics) from another (phonology) is relatively unimportant as compared with the sharing of notions that straddle semantic theory and grammatical theory, being of equal importance to both.† The notion "linguistic sign" is such a notion, being central to the whole of the "plerological" system of language (see below), both grammar and semantics. This notion has been developed through close collaboration between Mulder and myself with an eye to both grammatical and semantic aspects of the theory, and it would be hard to determine precisely our relative contributions to this part of "axiomatic functionalist" theory (cf. Mulder and Hervey 1972). The integrated notion of "sign" held in common between Mulder and myself not only provides a chief source of integration between "axiomatic semantics" and "axiomatic functionalist" theory as a whole, but plays an important part in determining the scope of "axiomatic semantics" within the overall theory,

† See my "Grammar and semantics in 'axiomatic functionalist' linguistics", *Lingua*, vol. 36, no. 1, 1975.

since "axiomatic semantics", as it will emerge later, is a "denotational sign-semantics". Strictly speaking, "axiomatic semantics" applies only to signs, entities which are *both* paradigmatic elements in grammar *and* have *wholly fixed-conventional information values* in the semiotic system under consideration.†

Because of the importance of the notion "sign" it might be in order to reiterate in this Introduction certain points about the wholly fixed-conventional nature of the "sign" as defined in "axiomatic functionalist" literature (see especially Mulder and Hervey 1971, 1972).

Signs are a proper subset of *indices*, the latter being *elements which can convey information.* Indices are subdivided into the following sub-types:



A *natural index* is an index for whose interpretation no knowledge of conventions is necessary, that is to say, which can be interpreted on the basis of our experience of the natural (physical) world alone (especially on the basis of causal and co-occurrence relations).

A *signum*, on the other hand, is an index which cannot be correctly interpreted without some knowledge of certain – of necessity "arbitrary" – *conventions.*

Symbols are *signa* whose precise and correct interpretation depends at least partly on occasional definitions of the specific values they are to have in given situations, or in given operations. If that dependence is only partial, and fixed (i.e. non-occasional) conventions also operate in limiting the possible interpretation of the symbol in question, that symbol is a *proper symbol.* If the interpretation of the symbol depends wholly on occasional definition, and fixed conventions cannot in any way be said to determine the actual or potential interpretation, the symbol in question is a *nonce-symbol.*

† See ibid. and also J. W. F. Mulder and S. G. J. Hervey, "Index and signum", *Semiotica*, vol. 4, no. 4, 1971.

Signs are *signa* whose correct interpretation depends wholly on a knowledge of certain "arbitrary" but wholly fixed (i.e. non-occasional) conventions (tacit or explicit), for instance those prevalent, implicitly, in a given speech-community. These conventions are learnt when we learn a language, whether by conscious academic effort, or by trial and error. It should, incidentally, be noted that, although dictionary definitions may contain statements embodying the conventions governing the interpretation of signs in languages, the interpretation of these signs does not depend on the definitions. On the contrary, the definitions, insofar as they *describe* the appropriate conventions, depend themselves on the conventions, and not *vice versa*. If the conventions alter, the dictionary needs to be revised – if the dictionary departs from the conventions prevalent in the speech-community, it, and not the speech-community, holds the wrong "key" to correct interpretations of the signs in question. Clearly, the interpretation of the signs depends in such a case wholly on knowledge of conventions, whether these conventions were learnt by consulting dictionary definitions, or by trial and error.

As a final point in introducing "axiomatic semantics" I come to the most important aspect of the logical dependence of the semantic theory on Mulder's "axiomatic functionalist" linguistic theory. The semantic theory, being a proper sub-theory of "axiomatic functionalism", finds its definition of scope stateable only in terms of the overall theory. This in itself makes reference to the basic tenets of the overall theory absolutely necessary. Furthermore, the semantic theory is answerable for its consistency with fundamental axioms and definitions of "axiomatic functionalism", some of which it treats as premisses for the logical deduction of its own theorems. This makes it necessary to reiterate here a basic stock of Mulder's axioms and definitions. An early statement of these axioms and definitions can be found in Mulder's *Sets and relations in phonology* (Mulder 1968, pp. 10–12), which has been superseded by a version revised in the light of subsequent research and presented at the Premier Colloque International de Linguistique Fonctionelle, Groningen, The Netherlands, 1974.† It will not be necessary in this Introduction to give more than a selection of relevant axioms and definitions. They are as follows:

† J. W. F. Mulder, "Postulates for Axiomatic Functionalism", *Proceedings of the Premier Colloque International de Linguistique Fonctionelle*, Groningen, The Netherlands, 1974 (forthcoming).

Axiom A **All features in semiotic sets are functional.**

Def. 1*a* "Functional" for "separately relevant to the purport of the whole of which it is a part".

Def. 1*b* "System" for "self-contained set of features with a common purport".

1b^1 "Self-contained" for "representing all relative dependences of its members, as members of the set in question".

Def. 1*c* "Semiotic system" for "system of conventions for communication".

1c^1 "Features" for "elements, analytical properties of elements, or relations between elements or properties of elements".

1c^2 "Entity" for "element or discrete disjunct analytical property of element".

1c^3 "Semiotic entity" for "entity in semiotic system".

Axiom B **Semiotic systems contain simple, or complex unordered, or complex ordered signa and figurae.**

Def. 2 "Information-value" for "specific set of potential interpretations".

2*a* "Sign or† symbol" for "semiotic entity with both *form* and *information-value*", simply called "*signum*" or "plerological entity".

2a^1 "Sign" for "*signum* with wholly fixed-conventional information-value".

2a^2 "Symbol" for "*signum* with not wholly fixed-conventional information-value, i.e. to which a temporary item of information-value can be attached by a definition".

2a^3 "Grammatical entity" for "*signum* in a semiotic system that has a grammar".

2a^{3a} "Grammar" for "morphology or syntax". Alternative definition: "complex plerological system" (see *complex system* and *plerological system* below).

Def. 2a^{3b} "Morphology" for "complex *unordered* plerological system" (see *unordered system* below).

† "or" in formal postulates is to be understood as "and/or".

Def. $2a^{3c}$ "Syntax" for "complex *ordered* plerological system" (see *ordered system* below).

Def. $2a^{3d}$ "Plerological system" for "system of *signa*".

Def. $2b$ "Figura" for "semiotic entity which has only form".

Def. $2b^{1}$ "Cenological entity for "*figura* in a semiotic system that has a cenology".

Def $2b^{1a}$ "Cenology" for "cenematics or cenotactics". Alternative definition: "complex cenological system" (see *complex system* and *cenological system* below).

Def. $2b^{1b}$ "Cenematics" for "complex *unordered* cenological system" (see *unordered system* below).

Def. $2b^{1c}$ "Cenotactics" for "complex *ordered* cenological system" (see *ordered system* below).

Def. $2b^{1d}$ "Cenological system" for "system of *figurae*".

Def. $3a$ "Phonology" for "cenology in natural language".

Def. $3a^{1}$ "Phonematics" for "cenematics in natural language".

Def. $3a^{2}$ "Phonotactics" for "cenotactics in natural language".

Def. $3a^{3}$ "Phonological system" for "cenological system in natural language".

$3a^{4}$ "Phonological form" for "feature belonging to phonological system".

Def. $3b$ "Articulation" for "cenotactics or syntax".

Def. $3c$ "Double articulation" for "both cenotactics and syntax".

$3c^{1}$ "Language" for "semiotic system with double articulation".

Def. $4a$ "Simple system" for "system without combinations of elements".

Def. $4b$ "Complex system" for "system with combination of elements".

$4b^{1}$ "Unordered system" for "complex system without ordering relations between elements" (see *ordering relations* below).

$4b^{2}$ "Ordered system" for "complex system with ordering relations between elements" (see *ordering relations* below).

Def. 5 "Semiotic system" for "system constituted by the interlocking of one plerematic system and one cenological system" (alternative definition to Def. $1c$).

Def. $6a$ "Ordering relations" for "asymmetrical relations between entities in combinations".

Def. 6*b* "Relations of simultaneity" for "symmetrical relations between elements in combinations".

Def. 7*a* "Paradigmatic" for "the oppositional or distinctive aspect of semiotic entities".

$7a^1$ "Paradigmatic relations" for "relations of opposition between members of sets".

$7a^2$ "Commutation" for "alternation between semiotic entities (or 'zero' and semiotic entities) in functional opposition as immediate constituents, in a given context".

$7a^3$ "Distinctive function" for "the set of commutations in which a semiotic entity may partake". Alternative definition: "the set of oppositions into which a particular semiotic entity enters".

Def. 7*b* "Syntagmatic" for "the ordering aspect of semiotic entities".

$7b^1$ "Syntagmatic relations" for "ordering relations between semiotic entities in combinations".

$7b^2$ "Syntagmatic entity" for "entity *capable of* standing in ordering relations with other entities or having an internal structure such that it is capable of containing – as constituents – entities capable of standing in ordering relations with other entities".

Def. 7*c* "Tactic" for "cenotactic or syntactic".

$7c^1$ "Cenotactic entity" for "syntagmatic entity in cenology".

$7c^2$ "Phonotactic entity" for "cenotactic entity in natural language".

$7c^3$ "Tactic relations" for "constructional relations (whether ordering or not) between syntagmatic entities, as immediate constituents, in combinations".

Def. 7*d* "Syntactic entity" for "syntagmatic entity in grammar".

$7d^1$ "Syntactic relations" for "tactic relations in grammar".

Def. 7*e* "Cenotactic/phonotactic relations" for "tactic relations in cenology/phonology".

Def. 7*f* "Constructional relations" for "relations between immediate constituents".

Def. $7f^1$ "Constituents" for "entities (of the same kind, i.e. of the same level of abstraction) in self-contained combinations".

Def. 7*g* "Positions" for "divisions within a chain, such that in

every such division an entity, as an immediate constituent of that chain, can stand and alternate (i.e. commute) with other entities, or with zero". Alternative definition: "points on a chain (see below) corresponding to relata of direct tactic relations".

Def. $7g^1$ "Paradigm" for "set of entities in functional opposition in a given context, within a chain".

Def. $8a$ "Ceneme" for "self-contained bundle of one or more distinctive features as immediate (and at the same time: ultimate) constituents".

$8a^1$ "Cenematic complex" for "complex ceneme".

$8a^2$ "Phoneme" for "ceneme in natural language".

$8a^3$ "Distinctive feature" for "minimum cenematic entity".

Def. $8b$ "Plereme" for "word or grammateme".

$8b^1$ "Word or grammateme" for "self-contained (by definition: simultaneous) bundle of one or more monemes as immediate (and at the same time: ultimate) constituents". Alternative definition: "minimum syntagmatic entity in grammar".

$8b^2$ "Morphological complex" for "complex plereme".

$8b^3$ "Moneme" for "minimum morphological entity". This implies "minimum grammatical entity".

Def. 9 "Distributional unit (wider sense)" or "field of relations" or "chain" or "self-contained bundle of positions".

Def. $9a$ "Distributional unit (narrow sense)" or "cenotagm (in natural language: phonotagm)" for "self-contained bundle of positions in cenology (in natural language: phonology)".

Def. $9b$ "Phrase" or "syntagm" for "self-contained bundle of positions in grammar".

Def. 10 "Syntagmeme" for "pair consisting of a paradigmeme and the position in which it stands".

Def. $10a$ "Paradigmeme" for "members of a set of entities in functional opposition in a given context, within a chain", i.e. "member of a paradigm".

The above set of axioms and definitions – reproduced with some omissions and minor alterations from Mulder's "Postulates for Axiomatic Functionalism" (Mulder 1974) – serves as a framework for an entire linguistic theory within which "axiomatic semantics" finds

its place as a vital subdiscipline.† The semantic theory should not – in fact, cannot – be assessed in isolation from the overall theory, including the semiotic theory‡ in which it is embedded. As for the scope of "axiomatic semantics", this refers to a restricted area of the overall scope of the linguistic theory. This scope can, in terms of the overall theory, be summed up as follows:

> "*axiomatic semantics*" *is a theory for the description of the wholly fixed-conventional information values of linguistic signs (in their capacity of being paradigmatic entities in grammar as well as fully fledged signs).*

† Cf. my "Postulates for Axiomatic Semantics", in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press (forthcoming).

‡ The chief postulates – involving a theory of types of semiotic system, and a theory of types of index – are semiotic, as opposed to narrowly linguistic, in nature. Axiomatic functionalist linguistics views language as a given type of semiotic system, one among many possible types. See especially J. W. F. Mulder and S. G. J. Hervey, *Theory of the linguistic sign*, Mouton, The Hague, 1972, and J. W. F. Mulder and S. G. J. Hervey, "Language as a system of systems", *La Linguistique*, 11, 2, 1975.

PART ONE

SEMANTIC THEORY

I

The Notion "Sign"

Semantics deals with the "meaning" (information value) of plerological entities† in languages. Such plerological entities as fall strictly within the scope of semantic description are, by requirement, elements that belong wholly to given languages, being determined entirely – in all their *synchronic* aspects, that is – by the conventions of those languages. Those elements in the grammatical system‡ of a language which are *wholly* conventional within the language (viewed as a self-contained semiotic system), have, by virtue of the fact that they *are* wholly conventional, information values which are (synchronically speaking) wholly "arbitrary" – that is, entirely determined by the fixed conventions of the system to which they belong. In "axiomatic functionalist" semiotics such elements are called *signs*. For example, the grammatical entity "the man" (both in its entirety, and in terms of its constituents) is, in contradistinction to, say, the grammatical entity "John" (potential grammatical constituent) *also for its information value* wholly dependent on the conventions of English. It is for this reason that "the man", but not "John", is accounted as a *linguistic sign* of English. The conventions that determine the information value of a linguistic *sign* – but not the factors that determine that of a grammatical constituent *symbol*§ – are those of the particular language under consideration. Consequently, a semantic description of those conventions, and of the information value they attach to the linguistic sign, is a proper part of the description of the language in question. It should be clear from this why "axiomatic semantics" restricts itself to the description of *linguistic signs*, since these are all and only the entities that are determined, not only in grammatical distribution, etc., but also in information value, by linguistic conventions. In crude terms, semantics must be able to treat the information value of "the man" (as well as of "the" and "man") in a description of English, because this information value is a "fact" of the conventions of the English language. But a semantic description of English would not deal with the information value of

† See the set of Definitions in my Introduction. ‡ Ibid. § Ibid.

"John", simply because this information value (shall we say, the question of the particular entities in the world that *are* called "John") is not a "fact" of English.

Linguistics has frequently fallen into the error of failing to recognize the extension of the set of linguistic signs in given languages. In one direction this extension becomes too wide, as I have argued in the foregoing, if grammatical entities other than those with wholly fixed conventional information values in the given language are included. In another direction the extension often becomes too narrow through the error of allowing considerations of "magnitude" or "complexity" to enter into the very definition of the notion *sign* (or whatever equivalent or similar notion is employed by the theory in question). The *genus* to which linguistic signs (plerological elements with full status in both grammar and semantics) belong is neutral to matters of grammatical analysability, and takes its definition uniquely from the "arbitrary" (i.e. conventional) nature of the relation between "form" and "meaning" (as it did already in Saussure's conception).† *Sign* is an entirely different category from "paradigmatic entity in grammar" since signs can be found in semiotic systems that have no grammar.‡ Yet it is only in grammar, that is in semiotic systems that have a grammar, that questions concerning the "complexity" of signs can arise. Nevertheless, for some linguists – usually because they want to limit themselves, conveniently if mistakenly, to semantic description of relatively limited inventories – the notion of "minimal" or "atomic" seems to form a part of the definition of *sign* (or similar notion). The result of this misplaced introduction of grammatical criteria into the definition of a general semiotic notion is that, for some linguists it is effectively only morphemes, or only words§ that qualify for the status of "carriers of linguistic meaning" (signs). Under the present view such restrictions of the notion sign are seen to be absurd since they appear to assert, in fact, that "only atomic

† See F. de Saussure, *Course de linguistique générale*, Paris, Payot, 1972.

‡ See Def. $2a^{3a}$ in my Introduction.

§ See, for instance, Ullmann's overriding concern with *lexical semantics*, based on the tacit assumption that "semantic" (as opposed to "syntactic") meaning is synonymous with "word-meaning". As far as the conveying of meaning is concerned, i.e. the relation between a semiotic entity and its information value, there is no reason to suppose that the meaning of words is in any significant way different from the meaning of morphemes (monemes), or the meaning of syntagms. Ullmann, in favouring the *word* over and above other carriers of linguistic meaning, elevates a grammatical distinction to the level of a semantic and epistemological one (cf. S. Ullmann, *The principles of semantics*, Blackwell, 1957).

signs are signs" or "only syntactically simple signs are signs". Such absurdities should be avoided by insisting on strict adherence to the definition of "sign" as "semiotic element (of whatever 'complexity') having both 'form' and (wholly fixed conventional) 'meaning'". Semantics, in my sense, will, therefore, extend the study of conventional "meaning" – in the same theoretical framework, by the same methods, and without any discrimination – to any linguistic sign, whether syntagm, word, or moneme. Both in their capacity as paradigmatic entities in grammar, and in their capacity of entities with fixed conventional information values, these have equal rank as "carriers of meaning", and must be capable of semantic description purely from the point of view of the information value they have, in their own right. Thus, for instance, we should regard "the man hit the boy", "the man", "the" and "man" each in its capacity as a unit with conventional information value, i.e. as having an equal right to the status of sign. For this purpose it is immaterial that we could also treat the former two as bundles whose "meaning" is a function of the "meanings" of their constituents, *plus* of the relations between those constituents,† whereas the latter two cannot be so treated. In first instance, as signs in their own right, each of these entities relates as a unit directly to its conventionally determined information value. It is the concern of "axiomatic semantics" to evolve a theory for describing any sign (without prejudice for either "sentences", or "lexical items" as prime "carriers of meaning"),‡ in relation to its information value.

In general terms, as we have said, a sign is any element that is geared to the conveying of certain information, the value of that information being wholly fixed by convention. The information conveyed by a sign is, roughly speaking, its "meaning", or, as we shall see later, its "denotation". We shall return later to a closer examination of this, provisionally loosely formulated, statement.

For the present it might be profitable to illustrate the irrelevance of the "complex" *versus* "simple" dichotomy to the definition of the notion "sign" in the context of semiotics as a whole, by taking an example from a semiotic system other than a language.

† I envisage a "syn-semantics" for dealing precisely with this aspect, as a further sub-theory within "axiomatic functionalist" linguistic theory. But I see this aspect as requiring separate treatment elsewhere, not as part of the scope of "denotational sign-semantics", which is my present concern.

‡ This, in my opinion wholly misplaced, dichotomy underlies the usual, and currently common, separation between types of "lexical semantics" and types of "logico syntactico-semantics".

The traffic signal is a sign in that it is an element in a semiotic system (the system of traffic signs) in which both its form (i.e. a white arrow in a square blue field) and its "meaning" (translatable as "may follow the direction of the arrow") are fixed by convention. Within the traffic sign (and consequently within the system of traffic signs) the element is also a sign. That it is a functional element (separately relevant to the communicative purport of the whole of which it is a part) can be established through its opposition to in equivalent contexts (viz. ~). Furthermore, it is a sign in that both its form (square blue field) and its "meaning" (translatable as "may; it is permissible"; as opposed to the "meaning" of which is translatable as "must") are fixed by the conventions of the system of traffic signs. Finally, is demonstrably "simple" (or "minimal") in that it is not capable of further functional analysis within the system of traffic signs.

From this illustration it is clear that both the minimal element , and the complex element answer the definition of "sign". Thus we see that the notion "sign" applies equally to minimal or "*simple*" semiotic elements with fixed-conventional "meaning", and to *complexes* containing minimal signs in combination. If in a complex containing simple signs there are no actual or potential syntactic relations between the constituent signs, then those constituent signs are said to be in a *relation of simultaneity* with one another. The complex sign is then a *simultaneous bundle* of its constituents.† Both the constituents and the simultaneous bundle of those constituents, if they fulfil the conditions imposed by the definition (functional semiotic element with form and wholly fixed-conventional "meaning"), are signs in their own right, though corresponding to different types of grammatical entity.‡

A complex of constituents with syntactic relations between these constituents is a *syntagm* (alternatively viewed as a set of *paradigmemes* standing in syntactic positions, or as a set of *syntagmemes* forming a simultaneous bundle).§ Provided that both the complex and its constituents are functional and have "form" and a wholly fixed-conventional "meaning" within the semiotic system in which

† Cf. S. G. J. Hervey and J. W. F. Mulder, "Pseudo-composites and pseudo-words; sufficient and necessary criteria for morphological analysis", *La Linguistique*, 9, 1, 1973.

‡ Cf. my "Grammar and Semantics in 'Axiomatic Functionalist' Linguistics", *Lingua*, 36, 1975.

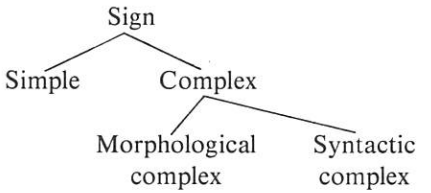
§ See Def. 10 in the Introduction, p. xxvi.

they occur, they are each signs in their own right.

According to what has been said with regard to relations of simultaneity and syntactic relations, linguistic signs fall into the following main categories:†

	Morphology	Syntax
atomic	moneme	plereme
molecular	plereme	syntagm

Signs (in language) are also classifiable according to their degree of complexity as follows:



Definitions‡

"Simple sign" for "sign not consisting of more than one moneme".
"Complex sign" for "sign consisting of more than one moneme".
"Morphological complex" for "complex sign not consisting of more than one plereme".
"Syntactic complex" for "complex sign consisting of more than one plereme".

Monemes belong solely to the paradigmatic aspect of grammar, for, by definition, they combine without syntactic relations. Their combinations form simultaneous bundles, with each bundle occupying only one position in syntax. Monemes are elements whose identity is established through paradigmatic opposition between the simultaneous bundles into which they enter.

† Cf. J. W. F. Mulder, *Sets and relations in phonology*, Oxford, 1968, p. 9.

‡ Compare with the set of Definitions quoted in my Introduction; also see S. G. J. Hervey and J. W. F. Mulder, "Pseudo-composites and pseudo words; sufficient and necessary criteria for morphological analysis", *La Linguistique*, 9, 1, 1973.

Pleremes may be viewed analytically by considering the monemes of which they are simultaneous bundles. Being simultaneous bundles, pleremes, by definition, never extend over more than one syntactic position. In this way their identity can be determined by establishing their distinctive function through paradigmatic opposition in given positions. A plereme viewed from the analytic point of view through its *distinctive features* (i.e. the monemes of which it consists) or through its *distinctive function* (i.e. the entities which can commute with it in given positions in syntax) is a *paradigmeme.*

Pleremes are also elements between which syntactic relations may hold. A plereme standing in a syntactic position, and determined with a view to the syntactic relation in which it stands with respect to another element or elements of a chain, is a *syntagmeme.* Syntagmemes are stated as pairs whose terms are a paradigmeme and a syntactic position (e.g. ⟨eat, Predicative⟩). Careful distinction must be kept between paradigmemes and syntagmemes: a plereme abstracted from its syntactic position is a paradigmeme; a plereme considered together with a specific position in which it stands (position being a *momentum* of a specific syntactic relation), is a syntagmeme.

Syntagms belong to the tactic aspect of grammar; they are signs formed ultimately by the syntactic combination of words. Syntagms may be analysed into constituents by establishing within them positions at each *momentum* of each syntactic relation, and stating the paradigmemes standing in those positions. Alternatively, a syntagm can be described in terms of its constitutive syntagmemes (between which there are no ordering relations, since they already contain within them a statement of their *position*) as *simultaneous bundles of syntagmemes* (Mulder 1968). Syntagms, however, can also be considered as members of paradigmatic sets, i.e. as paradigmemes.† It is only as paradigmemes that they constitute an object of study for the present semantic theory.

The establishment of monemes and pleremes, the setting up of positions with regard to *momenta* of syntactic relations, the analysis of syntagms into syntagmemes, etc., are tasks in grammar. They are tasks performed on plerological entities in language. As *paradigmemes* (i.e. in isolation from the syntactic positions in which they can stand) these plerological entities may also be linguistic signs in their own right. It is in this capacity that "axiomatic semantics" considers them as objects for semantic description.

† See the Definitions in my Introduction.

The notions of semantics are applicable to the elements defined as linguistic signs, and, therefore, to the very signs which also belong to grammar. Consequently, the scope of semantics and that of grammar are partially co-extensive (overlap in the type of speech phenomenon – i.e. information-conveying realizations – intended for description), while the two disciplines remain logically distinct.† Signs, in other words, may be described from a grammatical point of view, or from a semantic point of view; but the two points of view, and the theoretical or descriptive notions they lead to, while being complementary, must be logically independent of, and distinct from, one another. In the actual description of a language these two points of view must form an integrated, coherent and consistent whole, and in this sense, both grammar and semantics are inter-dependent prerequisites to descriptions of the "*plerology*" of a language. Consistency with the grammatical part of a description may not be ignored in the semantic description, and *vice versa*.

Furthermore, given the levels of grammatical analysis, semantic description is provided with a framework whereby it can classify signs into different grammatical types, and apply its notions to inventories limited by recourse to grammatical classification. In this way an inventory may, for practical reasons, be limited to *pleremes* (if desired) – a limitation that is *ad hoc* from the semantic point of view, but feasible because of the grammatical definition of the notion *plereme*. The semantic theory is applicable indiscriminately to any grammatical type of sign, indeed that theory itself draws no distinction between these types. In practice, however, one may wish to limit description to the "lexicon" of a language. For practical reasons we cannot say that the semantic theory can produce a description of *all* the signs of a language – it can, however, do so for *any* given linguistic sign.

† See also my article "Grammar and semantics in 'Axiomatic functionalist' linguistics", *Lingua*, 36, 1975.

II

Utterance, Form and Reference

A sign is an element in a semiotic system, and linguistic signs are elements in those semiotic systems which we class under the genus-term *Language*. To be more specific, a *sign* is a *model* with relevance to both grammar and semantics; not a *fact* belonging to the empirical data of speech. The set of corresponding empirical facts, in this case message-bearing *speech events*, is not a system; only the model set up to account for them is.

A sign is a model for a certain set of speech facts which it "accounts for". To require justification of such a relation between model and facts would be misguided, since the *raison d'être* of each item in a descriptive model is, in the first instance, that it should account for certain empirical facts. The relation holding between the model and the facts can be stated as follows: *The model applies to a set of empirical facts.*† This relation holds between any given item in the model and the set of facts with which it is isomorphic, i.e. to which it *applies*. A sign applies to certain isolatable sections of facts. In the case of a linguistic sign the facts to which it applies are "isolatable sections of speech".‡

A *linguistic Sign* is a model set up in a linguistic description to account for speech facts "having form and meaning". Each sign is set up in such a way that it applies not to a single individual speech fact but accounts for classes of distinct speech facts between which there is a particular relation of "similarity".§ We shall, later on, examine the conditions under which it is valid to account for classes of speech facts by means of given signs.

Every single speech event belonging to the class of facts for which a given sign is a model, is a *realization* of that sign. This is not to say that the sign may be defined as a class of speech facts, for direct class

† Mulder, *Sets and relations in phonology*, Oxford, 1968, p. 12, gives a definition of linguistic models as "structures that *apply* to 'isolatable' sections of speech".

‡ Ibid.

§ Thus we may say that a "type-token" distinction is maintained between a sign and its utterances. These utterances are "similar" by virtue of being "tokens" of the same "type", i.e. of the same sign.

membership does not hold between a sign (item in the model) and speech events (empirical data). The only relation that may validly hold between these is descriptive *isomorphism*.† Consequently, we need to set up in the model itself, an item applying to individual realization of signs, so as to be able to treat the sign as a class‡ of such items between which certain relations of "similarity" hold. This item we shall call *Utterance* (as distinct from *realization*).

An *utterance*, in this technical sense, as distinct from a *realization*, is an individual *member* of a sign. It is itself a model in a linguistic description, namely a model applying to a single speech fact that has "both form and meaning". The following relations will then hold:

	relation of descriptive isomorphism	Set of
Sign	⟶	speech
	(i.e. applies to)	facts
	relation of descriptive isomorphism	Single
Utterance	⟶	speech
	(i.e. applies to)	fact

Each sign can then be viewed as a *class of utterances*. An utterance is a *member* of a sign (as a class).

The type of speech fact for which an *utterance* is a model has the characteristics of having a certain recognizable form, in general observable as a phonetic sound, and a recognizable "meaning" (an item of information) conveyed by the speech fact in question.

In an utterance, which is a model for such a single speech event, we need to reflect the simultaneous presence of formal realization and of information conveyed. We therefore need to set up, within *utterance*, a term that will account for the physically observable aspect of single speech events, as well as a term that accounts for the information-bearing aspect embodied in single speech events. For lack of a better name – and remembering that the usage is a very specialized one here – we shall call the term accounting for the formal aspect of a speech event *a form*. Also at the risk of conflict

† Cf. J. W. F. Mulder, *Sets and relations in phonology*, Oxford, 1968, and J. W. F. Mulder, "On the art of definition, the double articulation of language, and some of the consequences", *Forum for Modern Language Studies*, V, no. 2, April 1969.

‡ The reason for wanting to treat signs as classes of utterances – briefly, the fact that this gives access to individual denotata of utterances – will become apparent in what follows.

with other terminologies, we shall call the term accounting for the information-bearing aspect of a speech event *a reference.*

Every utterance is an entity with a *form* and a *reference* as its intrinsic relata. A *form* is that "part" of an *utterance* which accounts for the acoustic aspect of the speech event for which the utterance is a model, but *only if* that speech event has an information-bearing aspect as well. Thus a realization of a phonetic form, say, [hɔn] as a concrete acoustic event (whether in isolation or as abstracted from a continuum) would not – in my sense of the term "form" – qualify for being a *form* in English, since such an event could not be said to have an information-bearing aspect within the conventions of English.

A *reference* is that "part" of an utterance which accounts for the aspect of "meaning" in a speech event; a *reference*, naturally, implies a *form*. A piece of information by itself, if such a thing could be encountered in isolation, could not, without an acoustic aspect,† constitute a *reference*. There is seen to be a relation of mutual implication between *form* and *reference*, in such a way that, by tautology, a *form* is always a term that is related to a *reference* in a single utterance, and likewise, a *reference* is a term which is related to a *form* in a single utterance.

Utterance, *form* and *reference* are notions applying to (descriptively isomorphic with) aspects of *single* events. Single individual events have the property of physical identity in time and space. Consequently each utterance is, *ipso facto*, taken to be distinct from every other utterance, on the basis of the unique physical identity of the speech fact for which it is a model. Similarly, every *form* applies to a specific acoustic event in time and space, and therefore no two utterances can have identical *forms*. Every *form* implies its own individual *reference* and therefore no two utterances can have identical *references*.

In the light of what has been said in the previous passage, the notion *utterance* may be redefined as THE SIMULTANEOUS CONJUNCTION OF A FORM AND A REFERENCE.

From this definition of *utterance* it is clear that every utterance is *wholly* distinct in intrinsic identity from every other utterance. We exclude, therefore, the possibility of the following situation:

Form A ⟶ Reference A = Utterance A
Form A ⟶ Reference B = Utterance B

† Ø can count as a concrete realization, if the absence of a certain acoustic substance is separately relevant to the purport of a given utterance.

for if Utterance A and Utterance B are distinct they must be conjunctions of form and reference at different space-time points, and their respective forms and references must also be placed at different space-time points (i.e. be non-identical). This being so, the situation can only be as follows:

Form A ⟷ Reference A = Utterance A
Form B ⟷ Reference B = Utterance B

Once non-identity of two forms is demonstrated or assumed, non-identity of references and of utterances is a necessary corollary. Similarly if non-identity of two references or of two utterances is given, non-identity in the other items automatically follows. Every utterance reduces to a one-to-one relation of mutual implication between *a specific form* and *a specific reference.*

Every *form* can be described in terms of *phonological form* (note that the two notions are quite distinct, but that a *form* may be said to *have* a phonological form). This is the direct result of the fact that a *form* is a model for a single acoustic event and that such events have phonetic substance (which is perhaps ∅), which in turn is the realization of a phonological form. The *forms* of two distinct utterances may have identical phonological form, a situation which arises when the phonetic substance of each is a realization of the same phonological form. This fact can be used as a criterion of "similarity" between utterances; in other words, two utterances whose respective *forms* have identical phonological form can, on this basis, be said to be "similar utterances".

If the respective *forms* of two utterances A and B have identical phonological form, say the phonological form /ðis iz r hors/, then the utterances A and B, which are *ipso facto* non-identical, are "similar" by virtue of their *forms*, i.e. "formally similar".

"/ðis iz r hors/"(A)
"/ðis iz r hors/"(B)
} formally similar (non-identical) utterances

Every *reference* is a model for the information-bearing aspect of a speech event, bearing information whose ultimate substance is an object, quality, event or relation, or "something" in the universe (real or imaginary). About the objects, qualities, etc., underlying the reference of an utterance it is possible to make perceptual or conceptual judgements. Thus we may be able to determine perceptually whether two references have identical or non-identical objects, etc., under-

lying them. For instance, let us assume that we have perceptually determined that the item of information involved in two distinct utterances "/hors/"(A) and "/hors/"(B) has identical substance, in that in both cases the references concern one and the same flesh and blood horse. In that case the empirical identity of the underlying "thing" constitutes a criterion for "similarity" between references.† Here we must reiterate that *reference*, in our sense, is a model in the theory and not an empirical object, quality or event, and that no two references belonging to separate utterances can ever be identical. Two utterances whose respective references have one and the same empirical "thing" underlying them are, by virtue of this fact, "similar utterances".

If the respective *references* of two utterances A and B have, empirically speaking, the same item of information underlying them, for instance the fact that the Thames is a river, then the utterances A and B are "similar" by virtue of their references (regardless of formal similarity), i.e. "*referentially similar*". Thus there is not only referential similarity between

"/ðr temz iz r rivr/"(A)
"/ðr temz iz r rivr/"(B)

but also between two utterances

"/ðr temz iz r rivr/"(C)
"/ðis iz r rivr/"(A)

provided that the underlying item of information in each case involves the fact that the Thames is a river.‡

Using the similarity criteria for forms and for references, there are three possible ways in which utterances can be "similar":

(1) their forms are similar
(2) their references are similar
(3) their forms and their references are *both* similar.

I shall give instances of all three types of similarity.

Two utterances (models for sections of speech events taking place at different space-time points)

† We could have called this situation "co-reference".

‡ It is possible to produce referentially similar utterances to the utterance "/ðr temz iz r rivr/" in other languages, or indeed other semiotic systems. It is interesting to note that one cannot produce formally similar utterances between different semiotic systems, unless these systems have identical phonologies.

"/hors/"(A)
"/hors/"(B)

may be similar through their forms alone. This means that their references are not similar, in that the horses involved in the two cases are empirically non-identical. Their forms, however, are similar, because they have the same phonological form /hors/.

If, on the other hand, we take it that the references of the two utterances above involve one and the same concrete physical entity, a particular individual horse, then the two utterances will be similar both formally and referentially.

Referential similarity (without formal similarity) holds between two utterances (models for sections of two different speech events)

"/sTalirn/"(A)
"/hors/"(A)

on condition that the reference of "/sTalirn/"(A), and the reference of "/hors/"(A) involve one and the same concrete instance of a horse.

By using the similarity criteria for forms and references, utterances can be organized into three types of "similarity classes"

(1) form classes
(2) reference classes
(3) form-reference classes.

In this way it is possible to talk about, for instance, a *form class* constituted by all the utterances that are formally similar to a given utterance "/hors/"(A), a *reference class* constituted by all the utterances referentially similar to a given utterance "/hors/"(A), as well as a *form-reference class* constituted by all the utterances that are both formally and referentially similar to a given utterance "/hors/"(A).

The form class of which "/hors/"(A) is a member would be an open set of utterances {"/hors/"(A), "/hors/"(B) . . . "/hors/"(N)},† each member of which (regardless of its reference) has the property of being realized by a phonetic substance appropriate to the phonological form /hors/.

The reference class of which "/hors/"(A) is a member would include an open set of utterances "/hors/"(A) . . . "/sTalirn/"(A) . . . "/animrl/"(A) . . . "/ðis θiŋ/"(A) . . . etc., with the proviso that all

† This class would include utterances whose references have the kind of "horse" found in a gymnasium (vaulting-horse) underlying them.

the utterances in the set (regardless of their forms) have one and the same concrete object *horse* underlying them.†

The form-reference class to which a given utterance "/hors/"(A) belongs is a more restricted, though still potentially infinite, class of utterances selecting from the form class of "/hors/"(A) those and only those utterances whose references have one and the same object *horse* underlying them; i.e. it is the intersection of the form class of "/hors/"(A) and the reference class of "/hors/"(A).

None of the similarity classes, nor any combination of them, is necessarily coextensive with the class of utterances that constitutes a sign. The reference class of all the utterances having the same underlying object as "/hors/"(A) includes members of various other signs alongside with members of the sign "horse". The form class to which "/hors/"(A) belongs may also include utterances that do not belong to the sign "horse", but to a homonym "(vaulting) horse". As for the form-reference class of "/hors/"(A), this includes only a subset of the class of utterances belonging to the sign "horse", namely those utterances of that sign which have the same underlying object as the utterance "/hors/"(A).

Consequently, when viewing sign as a class of utterances between whose members certain relations hold, none of the similarity conditions discussed above can be used as sufficient and necessary criteria. Neither through similarity of form nor through similarity of reference is it possible directly to account for that specific intuitively recognized "similarity" which obtains between speech facts that are *realizations of the same sign.*

In order to be able to operate with signs as classes of utterances (in a certain relation to one another), we shall regard *sign* as A CLASS OF EQUIVALENT UTTERANCES.‡

Sign = {utterance A ∪ utterance B . . . ∪ utterance N}
(where utterance A is "equivalent" to utterance B . . .
is "equivalent" to utterance N)

The relation of "equivalence" holding between utterances which are members of one and the same sign, holds also between the respective *forms* of the utterances, as well as between the respective *references* of the utterances. In other words, if in a certain set of

† We could have called a reference class: a class of "co-referential" utterances.

‡ Mulder defines "equivalent" as "functionally identical or representing the same", *Sets and relations in phonology*, Oxford, 1968, p. 119.

utterances all the utterances are *equivalent* to one another, then it follows that all the forms of those utterances are *equivalent* to one another, and that all the references of the utterances are also *equivalent* to one another. Equivalence in my sense here is, in fact, simply the *relation of "belonging to the same sign"*.†

The forms of all utterances belonging to the same sign constitute a *class of equivalent forms.* A CLASS OF FORMS WHOSE MEMBERS ARE ALL FORMS OF MEMBERS OF ONE AND THE SAME CLASS OF EQUIVALENT UTTERANCES (i.e a sign) IS *A CLASS OF EQUIVALENT FORMS*.‡

The references of all utterances belonging to the same sign, constitute a *class of equivalent references.* A CLASS OF REFERENCES WHOSE MEMBERS ARE ALL REFERENCES OF MEMBERS OF ONE AND THE SAME CLASS OF EQUIVALENT UTTERANCES (i.e. a sign) IS *A CLASS OF EQUIVALENT REFERENCES*.§

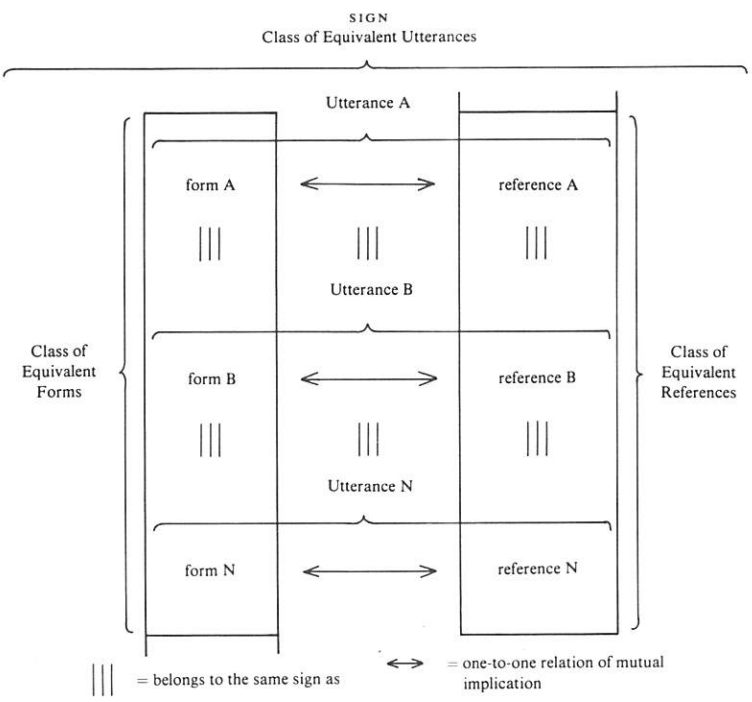
Both of the above equivalence classes are open sets, just as classes of equivalent utterances are, themselves, open sets. This is a necessary requirement, since any given sign must account for an unlimited number of utterances each in turn applying to one of a potentially infinite number of speech events. That this must be so is clear from the absurdity of the only alternative. With signs as closed sets of utterances, we would, in fact, be implying that signs can be "exhausted" and that we would run out of speech unless signs were replaced and replenished regularly.

Having set up the notion of classes of equivalent forms and that of classes of equivalent references, the notion sign may be re-defined as the conjunction of a class of equivalent forms and the appropriate class of equivalent references, in such a way that every number of the class of equivalent forms is in relation with one and only one member of the class of equivalent references, thereby constituting a single utterance which is a member of the sign (i.e. class of equivalent utterances) in question.

† How such "equivalence" can be determined is one of the major problems dealt with in later chapters (see especially Chapter VII). Suffice it to say that "equivalence" is intended to capture the idea of utterances being "tokens" of the same "type" (sign). It is this relation that Bloomfield tried to capture by speaking of utterances that are "alike" as being "the same" *qua* linguistic form.

‡ This notion is *equivalent* to Mulder's notion *Expression*; cf. J. W. F. Mulder and S. G. J. Hervey, *Theory of the linguistic sign*, Janua Linguarum Series Minor, Mouton, The Hague, 1972.

§ This notion is *equivalent* to Mulder's notion *Content*, cf. ibid.



Roughly speaking, the class of equivalent forms is the "form" of the sign, statable in terms of phonological properties by applying phonological criteria. The class of equivalent references is, roughly speaking, the "meaning-bearing" aspect† of the sign. It is the purpose of my theory, amongst other things, to develop criteria, *via* the information conveyed by utterances, which can be applied to the "meaning-bearing" aspect, i.e. to the classes of equivalent references, of signs.

The definition of the notion sign as the conjunction of a class of equivalent forms and the appropriate class of equivalent references is logically equivalent to the definition given by Mulder:

class of phonological forms R distinctive function in grammar EXPRESSION
distinctive function Ř class of phonological forms in grammar CONTENT

† That is to say, this is the aspect that captures the fact that the sign has a specific denotational potential.

Naturally, the two definitions are not identical, due to the fact that *utterance* does not appear as a model in Mulder's part of the theory. Nevertheless, "Expression" and "class of equivalent forms" on the one hand, and "Content" and "class of equivalent references" on the other, are mutually equivalent.†

† We may give the following proof of that equivalence:
Let us introduce the following symbols:
C.E.U. for "class of equivalent utterances"
C.E.F. for "class of equivalent forms"
C.E.R. for "class of equivalent references"
i for "image", and $\{i\}$ for "class of images" (see Mulder 1974)
o for "denotatum", and $\{o\}$ for "class of denotata".
In that case, the formula for *form* will be i R o, and that for *reference*, the *converse* of *form*, will be o Ř i. This will mean that the formula for *utterance* as the conjunction of a *form* and a *reference* (which are each other's *converses*) will be rendered as $(i \text{ R } o) \,\&\, (o \text{ Ř } i)$, and the formula for a *class of utterances* as $\{(i \text{ R } o) \,\&\, (o \text{ Ř } i)\}$.
We may then proceed as follows
C.E.U. $= \{(i \text{ R } o) \,\&\, (o \text{ Ř } i)\}, \leftrightarrow$ S (a class of utterances such that it is co-extensive with a sign S)
$= \{i\} \text{ R } \{o\} \,\&\, \{o\} \text{ Ř } \{i\}, \leftrightarrow$ S.
But, by definition, C.E.U. = S (see p. 31)
and S is alternatively defined (e.g. Mulder and Hervey 1972) as follows
S $= \{p\} \text{ R } s \,\&\, s \text{ Ř } \{\text{p}\}$.
That is to say
$\{p\} \text{ R } s \,\&\, s \text{ R } \{p\} = \{i\} \text{ R } \{o\} \,\&\, \{o\} \text{ Ř } \{i\}, \leftrightarrow$ S.
Now we may proceed to the equivalence between class of equivalent forms and Expression (see Mulder and Hervey 1972) as follows:
C.E.F. $= \{i\} \text{ R } \{o\}$, on condition that $\{i\} \text{ R } \{o\} \,\&\, \{o\} \text{ Ř } \{i\}, \leftrightarrow$ S.
But, by definition, C.E.F. is the *formal aspect* of a sign S
and the formal aspect of a sign is its Expression (see Mulder and Hervey 1972) defined as
$\{p\} \text{ R } s$.
Therefore,
$\{p\} \text{ R } s = \{i\} \text{ R } o$, on condition that $\{i\} \text{ R } \{o\} \,\&\, \{o\} \text{ Ř } \{i\}, \leftrightarrow$ S.
and both the formulae can represent either Expression or C.E.F.
As for the equivalence of class of equivalent references and Content (see Mulder and Hervey 1972.
C.E.R. $= \{o\} \text{ Ř } \{i\}$, on condition that $\{i\} \text{ R } \{o\} \,\&\, \{o\} \text{ Ř } \{i\}, \leftrightarrow$ S
that is to say, C.E.R. is the *converse* of C.E.F.
But, by definition, C.E.R. is the "*meaning-bearing*" *aspect* (see p. 32) of a sign S, that is to say, the *converse* of the formal aspect
and the "meaning-bearing" aspect of a sign is its Content (see Mulder and Hervey 1972) defined as
$s \text{ Ř } \{p\}$.
Therefore,
$s \text{Ř } \{p\} = \{o\} \text{ Ř } \{i\}$, on condition that $\{i\} \text{ R } \{o\} \,\&\, \{o\} \text{ Ř } \{i\}, \leftrightarrow$ S
and both the formulae can represent either Content or C.E.R.
We could also add – if the above demonstration is not, in itself, sufficiently compelling – that $\{p\}$ (class of phonological forms) subsumes by implication a specific class of images appropriate to the sign S, these being the sound images in terms of which the sign S can be realized

It is the aim of this theory to find means for establishing sign identity, and to deal with the semantic properties of signs, through criteria applied to classes of equivalent references. The notions introduced in the present chapter will serve as a theoretical foundation for these tasks.

(i.e. $\{p\} \rightarrow \{i\}, (\{i\}\ \mathrm{R}\ \{o\}\ \&\ \{o\}\ \check{\mathrm{R}}\ \{i\}, \leftrightarrow \mathrm{S})$),
and that s has just the function of subsuming by implication *a potential* for the sign S to correspond to a particular denotation class,
(i.e. $s \rightarrow \{o\}, (\{i\}\ \mathrm{R}\ \{o\}\ \&\ \{o\}\ \check{\mathrm{R}}\ \{i\}, \leftrightarrow \mathrm{S})$).

III

Correspondence and Denotation Class

We saw in the previous chapter the distinction, one that is fundamental to this theory, between the *reference* belonging to an utterance and the object, circumstance, quality or event, etc., which underlies the reference. This distinction emerges clearly from the discussion on *referentially similar utterances*. By definition, no two utterances may have identical references, but they may have "similar" references, in that the object (etc.) underlying each is the same empirically determined entity.

For instance in any number of utterances belonging to the sign "Mont Blanc", although the reference is unique for each utterance (determined as it is by its relation to a distinct *form* in each case, in spatio-temporally non-identical utterances), the underlying object *Mont Blanc* (i.e. the geographical entity) is the same throughout. Examples such as this serve to illustrate clearly that reference and underlying object (event, quality, or circumstance), are two distinct notions. As a collective term for the objects, events, qualities, circumstances etc., underlying references, I shall use the term *denotatum*, as a technical term.†

Consider the case of a "thing" which we recognize with our senses as a *dog*, without, however, assigning it any linguistic expression, in other words, without realizing any utterance. Taking only a perceived item *dog* as given, we now assume that we wish to make an utterance with this given entity as its underlying denotatum. Given the "thing" *dog* as the object serving as the item of information about to be communicated, i.e. as a "thing-meant", the following courses are in fact open to us.

† The application of this term is similar in some respects to the usual sense of "referent", and to what Gardiner (and others after him) called "thing-meant". A. H. Gardiner, *The Theory of speech and language*, Oxford, 1932, pp. 29–33.

Note, however, that my use of "denotatum" differs from, for intance, Charles Morris' use of the term, in that "real" existence of an object is for him, but not for me, a vital criterion in the definition: "Where what is referred to actually exists as referred to, the object of reference is a *denotatum*." C. Morris, *Foundations of the theory of signs*, Chicago, 1947, p. 5.

Speakers of English are, in principle, perfectly at liberty, if they wish, to realize a phonological form, such as say /klant/,† in an attempt to realize an utterance with the given underlying thing *dog*. Owing to the particular conventions of the English language, this attempt will not produce a successful utterance. In fact, according to our definition of utterance, there will have been a failure to realize an utterance at all, and this for the following reasons:

(*a*) if the realization of the phonological form /klant/ is a realization of an utterance then there is a *form /klant/* (having the phonological form /klant/) in English;
(*b*) if there is a *form /klant/* then there must be an utterance "/klant/"(A) (i.e. an utterance having the *form /klant/*);
(*c*) if there is an utterance "/klant/" in English, then there is a class of equivalent utterances belonging to a sign "klant" in English;
(*d*) if "klant" is a sign in English then it is an element having "form and (conventional) meaning" in the model of English; i.e. there are conventions governing the information value of "klant" in English.

It is, however, the case that "klant" has no conventional "meaning" in English, a fact easily established by using an English-speaking informant. Consequently, the assumptions that

(*a*) there is a *form /klant/* in English
(*b*) there is an *utterance* "/klant/" in English

are proved to be false by confrontation with the data.

In the case of this attempt at an utterance conveying information to the value of the item *dog*, the result is evidently a non-utterance illustrating clearly the fact that an utterance is not merely a haphazard conjunction of a phonological form and a "thing-meant", but that of a *form* and a *reference* (as members of the *expression* and *content*, respectively, of a particular *sign*).

In the case of a non-utterance, there is *a priori* no reference, so in the above instance we have an intended denotatum, but no reference. Thus this instance further demonstrates that the underlying *denotatum*, as a notion, is distinct from the notion *reference*, and that the

† There is no phonological "rule" precluding the existence of a phonological form /klant/ in English.

reference, in the sense used here, should never be identified with the "thing-meant": the object, circumstance, quality or event about which communication was intended.

Continuing our attempt at realizing an utterance with the underlying denotatum *dog*, we may, in order to forestall the absurdity of the previous attempt (the fact that "klant" has no "meaning" in English), select "horse" which, having both form and "meaning", is undoubtedly a sign in English. Consequently, in English there must be at least one utterance "/horse/"(A). The phonological form of such an utterance will be /hors/. If then we realize the phonological form /hors/, we shall have realized an utterance "/hors/", a conjunction of a form */hors/* and an appropriate reference. By realizing an utterance "/hors/" we cannot, however, make a successful utterance involving the underlying thing *dog*. This again is a fact that can be easily determined by using an English-speaking informant and testing his reactions to a situation in which someone points to a *dog* and realizes an utterance "/hors/".

A successful utterance with the underlying denotatum *dog*, can be obtained if we realize, for instance, the sign "dog", or "animal", or "domestic animal" etc.; if we realize, that is, an utterance which may conventionally have an object *dog* as an underlying *denotatum*.

One may therefore validly conclude that there is some specific factor which determines, in the case of successful utterances, that a certain object, circumstance, quality or event (i.e. denotatum) may underlie the given reference in that utterance. To the presence or absence of this factor is attributable the fact that the reference of an utterance "/hors/"(A) cannot, within the conventions of the English language, have an item *dog* as its underlying denotatum; but that the utterance "/dog/"(A), or the utterance "/animrl/"(A), may do so.

There must be a strict relation between reference and underlying denotatum, so that utterances are successful only if that relation holds. This relation we shall call CORRESPONDENCE, inspired by the use of this term in a somewhat similar sense by Ullmann.†

CORRESPONDENCE IS THE RELATION WHICH HOLDS BETWEEN THE REFERENCE (AND THEREBY THE WHOLE UTTERANCE) AND THE APPROPRIATE UNDERLYING DENOTATUM OF AN UTTERANCE.

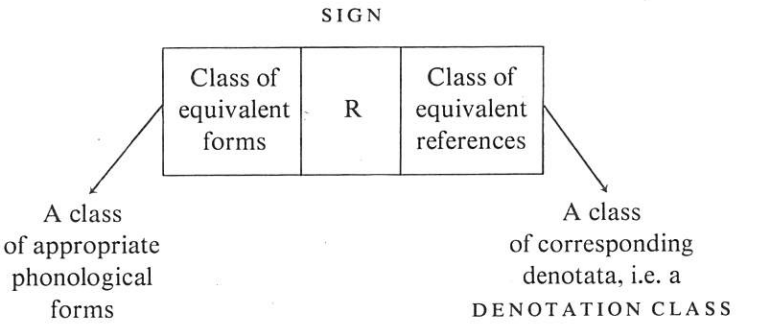
† "L'élément non-linguistique auquel le signifié *correspond* . . ." (italics mine), S. Ullmann, *Précis de sémantique française*, Bern, 1959, p. 20.

We can, therefore, say that in the case of a successful utterance there is *correspondence* between the reference and the underlying denotatum in such a way that in every instance *a single denotatum corresponds to* the reference. Every class of equivalent references determines a certain class of denotata constituted by all the underlying denotata which may correspond respectively to each member of that class of equivalent references. Therefore every class of equivalent references determines *a specific* class of denotata. This class of denotata is such that any member of it may, in any successful utterance, appear in a relation of correspondence with any one of the references belonging to the class of equivalent references in question. Through correspondence with references, denotata correspond also with the utterances in which those references appear. Through the class of equivalent references which determine a class of denotata whose members may respectively correspond with members of the former class, each class of equivalent utterances, i.e. sign, also determines the class of denotata which may correspond to respective utterances belonging to the sign. The class determined in such a way by a class of equivalent references shall be called a DENOTATION CLASS. Each sign (each class of equivalent utterances) has its appropriate DENOTATION CLASS.†

The relation between a class of equivalent references (or a class of equivalent utterances, whose references constitute the class of equivalent references) and the appropriate denotation class is a relation of one-way implication. That is to say, the class of equivalent references (or the class of equivalent utterances) implies its specific denotation class, just as a class of equivalent forms (and *via* this the class of equivalent utterances, whose forms constitute the class of equivalent forms) implies a specific class of phonological forms which are the phonological forms appropriate to the class of equivalent forms in question. Thus there is parallelism between denotation class and class of phonological forms:

† The term "denotation class" is here used roughly in the same sense as "denotation" in Salomon's use of that term: ". . . the denotation of a word is the sum total of its references: for example, *chair* denotes every single chair that has ever existed or ever will exist . . .". L. B. Salomon, *Semantics and common sense*, Holt, Rinehart and Winston, 1966, p. 14.

The affinity should also be pointed out between the notion "denotation class" and Prieto's view of the function of indices: "l'indice indique toujours une *classe de possibilités* . . . des possibilités que l'indice n'élimine pas" (L. Prieto, *Messages et signaux*, Paris, 1966, p. 18). In fact "denotation class" could, after Prieto, be defined as: "the class of possible denotata which are not eliminated by a given sign".



The one-way implication between class of equivalent references and denotation class means that only the denotata which correspond individually to references belonging to a given class of equivalent references, are members of the denotation class appropriate to that class of equivalent references, but not *vice versa*. When we speak of denotation classes we shall label them as "the denotation class appropriate to the class of equivalent references of the sign '*x*'", or "the denotation class of the sign (i.e. class of equivalent utterances) '*x*'".

The class of equivalent references proper to the sign "horse" includes a non-finite number of possible references (each being a term in one of a potentially infinite number of utterances belonging to the sign "horse"). Each of these references, which stands in conjunction with a *form*, and constitutes together with that *form* a successful utterance, corresponds to one and only one denotatum *horse*. The set of all those denotata which correspond to respective members of the class of equivalent references proper to the sign "horse" constitutes the denotation class appropriate to that class of equivalent references, or, in other words, the denotation class of the sign "horse".

All the members of this denotation class may however correspond individually to respective references from another class of equivalent references. It is this fact that accounts for partial or total denotational overlap between what are evidently distinct signs. Much of the present theory will be founded on the fact that sign identity is expressible in terms of equivalence classes, while *semantic* identity, non-identity and similarity can be tackled *via* the notion *denotation class*.

The possibility of non-identical signs being denotationally equivalent, in that they have identical denotation classes, leads on to a definition of synonymy. The identity or similarity of denotation classes is also what accounts, for instance, for the possibility of

translation from one language into another. No one could cogently argue that the sign "horse" in English and the sign "cheval" in French are identical signs; their very belonging to different systems (the two languages, English and French) precludes this possibility. It could, however, be argued that the two signs are exact denotational equivalents of one another, by virtue of having identical denotation classes. The "proof" of such a contention could only emerge as the negative end result of a series of experiments with informants showing that there is no denotatum *horse* that can correspond to a member-utterance of the sign "horse" which cannot also correspond to a member-utterance of the sign "cheval", and *vice versa*. The finding of a single denotatum that may correspond to a member of "horse" but not to a member of "cheval" (or *vice versa*) would demonstrate the denotation classes of "horse" and "cheval" to be non-identical. It may be the case that denotation classes in different languages are seldom identical, and that signs as a general rule do not have exact semantic equivalents in different languages. This is, in fact, tantamount to saying that *exact* translation is often impossible.

Within one language, the so-called synonyms† are different signs whose respective denotation classes consist of identical sets of members (denotata). The signs "adult male sheep" and "ram" are a case in point. Undoubtedly the two are different signs (easily seen from the fact that the former is *complex* and the other *simple*), and therefore the utterances which are members of them respectively contain references belonging to two different classes of equivalent references.‡ It is only by virtue of their denotation classes that the above two signs are synonymous, for the set of denotata which constitute the denotation class of the one sign is also the set of denotata which constitute the denotation class of the other, so that the two signs have identical denotation classes.

† See Chapter X on synonymy.

‡ The signs "adult male sheep" and "ram" differ in *content*, which does not preclude them from having the same *denotation*.

IV

The Nature of "Denotata"

A semantic approach employing the notions *denotatum* and *denotation* class cannot entirely avoid certain questions of a quasi-philosophical and philosophical nature. While wishing to keep clear of philosophical debate as far as possible, I feel that some explanation must be given of the sense in which the term "denotatum" is used in this theory, especially with regard to the idea that denotata can be viewed as extra-linguistic entities independent of utterances. It is, for instance, particularly important to note the wide sense in which the term "denotatum" is intended to be used, and to forestall certain objections which might be valid if the scope of this term were to be limited to "concrete" objects actually tangibly existing in the "real" world.

The problems of "existence" and "reality" seem particularly crucial with regard to the nature of denotata when viewed as extra-linguistic entities. These problems are entirely philosophical in nature and will only be broached here in a tentative way,† and that merely in order to give some indication, and tentative definition, of the sense in which denotata can be said to have objective, extra-linguistic existence.‡ I am particularly indebted on this point to the ideas of R. Harré, whose lectures on the Philosophy of Science at the University of Oxford (1967) first suggested to me a philosophical frame-

† I have, however, suggested – both in what follows and in other publications – that a principle of "functional ostension" may solve the problem of finding a suitable sense in which all types of "hypothetical entity" can be said to "exist". Cf. my articles "Postulates for Axiomatic Semantics", in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press (forthcoming), and "Semantics in Axiomatic Functionalist Linguistics", *Proceedings of the Deuxième Colloque International de Linguistique Fonctionelle*, Clermont-Ferrand, France, 1975.

‡ For a detailed treatment of this problem, and others raised in this chapter see R. Harré, *The principles of scientific thinking*, Macmillan, 1970, and R. Harré, "Powers", *The British Journal for the Philosophy of Science*, 21, 1, 1970. Philosophical foundations to this chapter should be sought in Harré's ideas concerning "hypothetical entities". I have been encouraged by the wide sense of the latter term to believe that my own wide use of the term *denotatum* is justified. "It is true that we can point to many entities other than things and their observable properties and behaviour . . ." (R. Harré, *The principles of scientific thinking*, Macmillan, 1970, p. 68).

work within which a denotational approach to semantics could be made consistent. Such an approach can only be both consistent and adequate in linguistics if *all* linguistic signs can, in fact, be said to denote (or, rather, to *have denotation*) in one and the same sense of that term. As long as signs "have meaning" in a number of widely divergent ways within a single semantic approach, there can be no question of an integrated, consistent semantics – the result is, instead, a hopeless tangle of eclectic notions.

Roughly speaking, when I talk of *denotata* in this theory, I have in mind entities recognizable and "ostensible", directly or indirectly (through certain "real" implications), as playing a role in the extra-linguistic world. (I shall return to this point in the set of definitions concerning the terms "denotable" and "ostensible".) These elements correspond to what Harré has called "hypothetical entities",† and which are defined by him as those entities to which "theoretical terms" apply. He gives the instances of the theoretical term "atom" and the theoretical term "valency" in science. The entities to which these terms apply are valid "hypothetical entities", from which we can see that the factor of *provable existence* is expended from the definition of "hypothetical entity".

Hypothetical entities, according to Harré, fall into three major categories:

(*a*) those which can be observed through the senses, or through instruments acting as extensions of the senses (these are "real" hypothetical entities);
(*b*) those which have not yet been observed, but may still be observed, pending the time that instruments are devised for observing them (these are hypothetical entities which are "candidates for reality");
(*c*) those which are not observable, and never shall be, either because they are purely fictional, or because they have a purely logical function in certain theories (among this group belong also hypothetical entities which erstwhile were candidates for reality, but whose existence has been conclusively disproved by observation. This third group is that of hypothetical entities which are "not candidates for reality").

The denotata of "axiomatic semantics" face, as it were, in two directions. While on the one hand they can be viewed as *entities*

† R. Harré, *The principles of scientific thinking*, Macmillan, 1970, p. 68.

corresponding to utterances, in an intra-linguistic view; on the other hand they can be related extra-linguistically to Harré's "hypothetical entities". A denotatum, when considered out of context of any particular utterance denoting it, and looked upon as an entity "expressible but not actually talked about", I shall call a *denotable*. By this term I draw particular attention to the fact that any "hypothetical entity" is a *potential denotatum*, but that *denotata* have an aspect which can and must be considered outside of a linguistic context:

an *utterance*	denotes	a *denotatum* which can be considered from a non-linguistic point of view as a *denotable*.

It is precisely the fact that denotata can be approached objectively, and independently of language, which makes it possible to compare and interrelate denotation classes of signs in terms of the denotata which are their members. The access to non-linguistic correlates of the semantic aspect of signs permits a treatment of "meaning" which avoids circularity. The situation here is somewhat analogous with that in phonology, where the fact that phonemes can be related to certain classes (or *areas*) of phonetic form – members of the latter being subject to language-independent, empirical tests – makes for the possibility of verifying descriptive hypotheses, as well as providing phonology with protocolized data *via* phonetics.

All three types of hypothetical entity as outlined above qualify for the status of *denotable*, although only some of these can actually be directly observed, while some of them are, in fact or in principle, not "concrete" entities at all. I preclude from the status of *denotables* only such entities whose admission to the status of "hypothetical entity" would, for some reason or other, imply a logical contradiction or absurdity. Thus while an utterance of "the moon is made of green cheese" denotes an actual hypothetical entity ("not a candidate for reality"), utterances of signs such as "square circle" and "colourless green ideas" are said to denote *zero*. This makes the denotation classes of "square circle" and "colourless green ideas", whose membership does not comprise any entity other than *zero: empty* denotation classes.†

† Note that in axiomatic semantics we do not – as, indeed, in linguistic semantics we should not – raise, or beg, any questions concerning the truth or falsity of

The denotation class of a sign may be said to be *empty* without implying any contradiction or absurdity, for this does not mean that the sign in question has no denotation class, and therefore does not affect the generality of the statement that *all signs have denotation* classes. There is a by no means trivial distinction between the statement that a given entity *does not denote* (i.e. is not an utterance belonging to any sign), and that that entity *denotes a zero denotatum* (i.e. is an utterance belonging to a sign whose denotation class is *empty*.†

While on the one hand "the moon is made of green cheese" (or, rather, the proposition corresponding to that sign) is, it would seem, false, but "means" something other than "in 1866 A.D. Britain was invaded by little green men"; on the other hand "square circle" and "colourless green ideas" are both *equally* "nonsense". That is to say, they both have the same "empty" denotation, in that they both correspond to the *empty* denotation class. In fact, in terms of the present theory, these two signs would, of necessity, be treated as *denotationally equivalent* (see Chapter X on *synonymy*). Insofar as there is a "meaning-difference" between them, that difference is a matter of "connotation" not of denotation.

Denotation classes with members which are "real" hypothetical entities are instanced by the denotation classes of signs such as "horse", "table", "virus", etc. The denotation class of the sign "abominable snowman" is made up of denotata which are hypothetical entities of the second kind – "candidates for reality" – for it

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propositions. Such questions are, at any rate, secondary to the question of "meaningfulness". Note also that the distinction between the "anomaly" of "the moon is made of green cheese" and that of "colourless green ideas" is drawn without implying that either of these is "ungrammatical" (i.e. not a *bona fide* sign in English), or "meaningless". As for the possible objection that since both "colourless green ideas" and "square circles" have the *empty* class as their denotation class they should – but manifestly do not – have the same "meaning", this implication simply does not hold. It is nowhere maintained in axiomatic semantics that denotation is all there is to "meaning" – on the contrary, denotation is only an aspect of "meaning" isolated as the centre of interest in what is a denotational sign semantics (cf. my "Notions in the manipulation of non-denotational meaning in speech", *La Linguistique*, 7, 1, 1971). If for no other reason, "colourless green ideas" and "square circles" differ in "meaning" because of the individual denotations of their constituents, just as "adult male sheep" and "ram" (in spite of their denotational identity) differ in "meaning" of a sort.

† For instance, such "empty" utterances may still consistently be said to have (unconventional or, at least, not fully conventional) "connotations" – whereas, non-utterances are not linguistic objects at all.

is possible that at some stage such entities may become observed, "real" hypothetical entities. The denotation class of the sign "force" consists of denotata which are hypothetical entities with a purely logical function in the calculus of physics. The denotation class of the sign "unicorn" has members which are hypothetical entities of a purely "fictional" kind; its members are nevertheless denotata in their own right. "Fictional" entities are valid denotata, provided that there is no logical absurdity implied by admitting them to the status of hypothetical entity.

Looking at denotata from a philosophical point of view (i.e. by considering their extra-linguistic nature), we can apply to them Harré's classification of hypothetical entities into the following categories:

(*a*) Objects: items and elements.
(*b*) Powers: the qualities and properties possessed by objects.
(*c*) Processes: the changes of state, quality, etc. undergone by objects.
(*d*) Relations: holding between objects "existing" in time and space (SPATIO-TEMPORAL); holding between objects involved in a process where one object undergoes change caused by the other (CAUSAL).

The latter categories cut across the classification of denotata according to the three types of hypothetical entity, producing the following scheme:

	REAL	CANDIDATE	NOT CANDIDATE
OBJECT	e.g. horse	e.g. abominable snowman	e.g. force unicorn
POWER	e.g. blue	e.g. ammonia-breathing	e.g. dimensionless, magnetic fire-breathing
PROCESS	e.g. walk	e.g. alchemize	e.g. depreciation
RELATION	e.g. on	e.g. ?	e.g. class-membership

In order to integrate the notion *denotatum* fully into the present theory, defining its status there in an explicit way, I propose to put forward the following set of definitions set out below. Some of the definitions included have to do with notions which have been discussed elsewhere, or notions which are of a more immediate concern to other parts of linguistics or semiotics. Nevertheless, I shall present the definitions as forming a system, particularly with a view to the fact that, taken in their entirety, they should make explicit, to some extent, the "theory of meaning" underlying the present theory of linguistic semantics.†

Def. 1 "Semantics" for "study of the denotation of signs in language".

Def. 2 "Language" for "semiotic system with a double articulation".

Def. 3 "Sign" for "index having both form and wholly fixed-conventional information value".

Def. 4 "Denotation or denotation class" for "class of denotata corresponding to a class of equivalent utterances".

Def. 4a (Alternative, equivalent definition to Def. 4.) "Denotation" for "inherent information value of a sign".

Def. 5 "Utterance" for "model for single realization of a sign".

Def. 6 "Realization" for "concrete speech event or part of concrete speech event".

Def. 7 "Denotatum" for "denotable corresponding to an utterance".

Def. 8 "Denotable" for "entity directly or indirectly ostensible, or entity which, if it existed, would be ostensible in some specified way".

Def. 9 "Ostensible"‡ for "distinguishable by opposition to other entities".

† An attempt is made at carrying the defence of a denotational semantics further into the philosophical domain of "theories of meaning" in J. W. F. Mulder and S. G. J. Hervey, *Theory of the linguistic sign*, Janua Linguarum Series Minor, Mouton, The Hague, 1972.

‡ For further discussion of the notion of "functional ostension" see my paper "Semantics in Axiomatic Functionalist Linguistics", *Proceedings of the Deuxième Colloque International de Linguistique Fonctionelle*, Clermont Ferrand, France, 1975.

Explanation

A denotable *horse* is ostensible in that it can be seen as distinct from other entities. In the same way, the quality of being *salty* is ostensible in that it can be experienced by the taste-buds as being distinct from other qualities. A denotable such as *force* can be made indirectly ostensible by observing the movement of objects. The denotables (these are *relations*) which become denoted by utterances of "and" are ostensible in that they can be experienced as manifestly different from, say, denotables denoted by utterances of "without", or of "or". A denotable *unicorn* is not actually ostensible, but we may reasonably specify that, if it existed, it could be experienced as distinct from other entities through, at least, the sense of sight.

V

Semantic Features

The semantic identity of a sign is positively determined by denotational properties of the class of equivalent references (the *content*) of that sign. It is negatively determined by the opposition of the sign to all other semantically differential signs which are opposed to that sign by commutation in equivalent contexts. The positively determined semantic identity of a sign – its content – can be characterized by *semantic features*. The negatively determined aspect of the semantic identity of a sign is its *semantic function*.†

There is a somewhat analogous situation in phonology; namely, the identity of a phoneme is positively determined by the appropriate class of allophones (a phoneme is a class of allophones), which in turn determines the "phonetic scope" of the phoneme,‡ and is negatively determined by the other phonemes to which the given phoneme is opposed by commutation in equivalent contexts.

One can state the identity of a phoneme in negative terms (by specifying what it is *not*) through listing the phonemes to which it is opposed by commutation. Such a statement will describe the phoneme in terms of its *distinctive function*. For practical reasons, owing to the large number of commutants signs may have, it is not, in general, possible to make analogous statements about the semantic identity of signs.

In phonology the identity of a phoneme can also be stated with a view to its positively determined aspect, that is to say, in terms of *distinctive features*. These distinctive features are the phonological correlates of those phonetic properties of the class of allophones (i.e. the phoneme) that functionally distinguish it from other classes of allophones (i.e. other phonemes). By analogy, the task that confronts us in the present chapter is to set up a procedure for stating the semantic identity of any given sign in terms of those relevant properties of its class of equivalent references which set the sign apart from all other semantically non-equivalent signs. These semantic

† See Chapter XII.

‡ Cf. J. W. F. Mulder, *Sets and relations in phonology*, Oxford, 1968, p. 187.

counterparts of the distinctive features of phonology shall be called the *semantic features* of signs.

In phonology the distinctive features (and the labels for them) are selected with regard to the phonetic properties of classes of allophones. These are properties that adhere "externally" to linguistic entities, that is to say, which, as properties, are relevant to phonemes, but, as entities, fall outside the descriptive scope of linguistics proper into *phonetics*.

In semantics, we need to establish an analogous method† for determining (and labelling) semantic features on the basis of such properties of classes of equivalent references as may be said to adhere to them "externally". These properties must, as properties, be relevant to the semantic identity of signs. As entities, however, they should fall outside the scope of linguistics proper and have independent extra-linguistic identities.

Semantic features for signs cannot be assigned directly and solely in terms of their membership in terms of references. As such, these references have only the trivial and circular property of "equivalence" in common, the property, that is, of "being appropriate to one and the same sign".

We saw, however, in the discussion on "similarity classes", that references may have "external" properties in common, by virtue of having one and the same corresponding *denotatum* (cf. *classes of referentially similar utterances* and *referential similarity*). In the denotata which correspond to references of utterances we recognise the type of property that may enable us to assess and describe the properties of references.

More specifically, we have said that each class of equivalent references proper to a sign determines its own denotation class, and that the members of the latter (*denotata*) have independent extra-linguistic identity as *denotables*. Consequently, *denotata* and *denotation classes* constitute the kind of properties of references and of classes of equivalent references respectively, that will enable us to describe the semantic identity of signs in terms of *semantic features*.‡

† Note, however, that the analogy between distinctive features in phonology and semantic features is only a partial one. While the former are constituents (components) of phonemes, established as functional entities by *commutation*, this cannot be said about the latter. In other words, semantic features are *not* to be construed as semantic *components*.

‡ A characterization or definition of the "meaning" of signs *via* their denotations is envisaged also by Ebeling: "The semantic continuum cannot be anything else but

"Having one and the same corresponding denotatum *X*" is a property that can be held in common by a number of references. Such a property can be said, then, to characterize the references in question as opposed to other references that do not correspond to denotatum *X*. Furthermore, indirectly, classes of equivalent references may have properties in common in that the denotation class of one has members (denotata) in common with the denotation class of the other. While one must maintain a clear-cut separation between classes of equivalent references (no reference may belong to more than one class, for these classes are intrinsic to single signs, and no sign may share any of its *intrinsic* properties with any other sign) – so that the possibility of direct overlaps between classes of equivalent references is logically ruled out – it is permissible for *denotation classes* to overlap. This is a direct result of the fact that denotata and denotation classes are not *intrinsic* properties of signs in the linguistic model, but are "external" properties (in the same way as, for instance, the "phonetic scope" of a phoneme is its "external" property). Thus while the theory precludes classes of equivalent references from having *members* in common – just as phonological theory precludes phonemes from having *allophones* in common – it permits them to have denotational properties in common, in particular to *overlap* in denotation – just as phonological theory permits phonemes to overlap in "phonetic scope".

An example will serve to demonstrate the fact that denotation classes not only may, but do, overlap with one another in actual languages. The denotation class of the sign "horse" and the denotation class of the sign "stallion" have members in common – namely all the member-denotata of the denotation class of "stallion" (i.e. the denotation class of the sign "stallion" is properly included in the denotation class of the sign "horse"). This rests on the unrefuted hypothesis that all denotata capable of corresponding, in successful utterances, to utterances of "stallion" are also capable of corresponding to utterances of "horse", but not *vice versa*.

That the occurrence of such overlaps is a basic property implied by the way natural languages work becomes evident by considering

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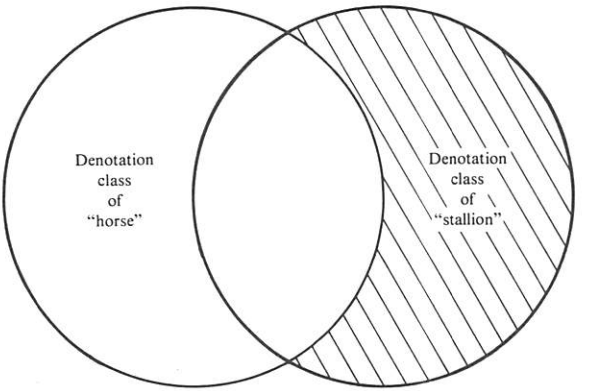
the real world, accessible to our senses. Parts of it, when referred to by means of a linguistic form, are usually called 'things meant'. The meaning of a linguistic form (morpheme or word) is its ability to point to (to denote) a number of things in reality. It is not to be identified with the things meant, but it certainly can be defined in terms of them." C. L. Ebeling, *Linguistic units*, The Hague, 1960, p. 88.

the absurdity of the opposite alternative – namely that signs tend to have denotation classes wholly discrete from those of other signs. This would argue for a predominance of cases in which denotata could only be denoted by utterances of one specific sign, cases, that is, in which there was a one-way implication between a particular denotatum and a single specific sign. Not only is it, in natural languages, in actual fact, apparent that one and the same denotatum can, probably always, be denoted by utterances of several signs, but the general type of relation between a given denotatum and linguistic signs is a one-many relation

denotatum $X \rightarrow$ sign "a" $\cup$ sign "b" $\cup \ldots$ sign "n"

allowing for freedom of choice in communication, and in "style".

A set-theoretical approach, and, in particular, the use of Venn-diagrams adapted for the purpose, is suitable for representing the overlapping of denotation classes. For instance, the relation between the denotation classes of the two signs "horse" and "stallion" can be illustrated in the following Venn-diagram:



A denotation class will be said to have a *class attribute* only with regard to a specific property that is common to all its members. Of course, all members of a denotation class have, by tautology, the property of "being members of that denotation class", and of "corresponding respectively to utterances of one and the same sign". This property is, however, *ipso facto* trivial and tautologous. On the other hand, the fact that *proper inclusion* of one denotation class in another

is prevalent in languages provides us with a non-trivial and non-circular way of establishing *class attributes.*

The argument may proceed as follows. If the denotation class of sign "*x*" is properly included in that of sign "*y*", then every member of the denotation class of sign "*x*" has (apart from its trivial membership in this latter class) the property of "being a member of the denotation class of sign '*y*'". Accordingly, "being properly included in the denotation class of sign '*y*'" is a *class attribute* of the denotation class of sign "*x*".† The denotation class of a given sign has, therefore, as many class attributes as there are denotation classes of signs in the language in question *which properly include that denotation class.*

By virtue of the relation of proper inclusion between respective denotation classes of signs, relations can be set up between those signs themselves – relations which are *semantic* in nature, because of the underlying denotational properties from which they derive. We say that, if the denotation class of the sign "*x*" *properly includes* that of the sign "*y*", then the sign "*x*" is a *hyperonym*‡ of the sign "*y*". The denotationally based semantic relation between sign "*x*" and sign "*y*" under these conditions is a relation of *hyperonymy.* The converse relation between sign "*y*" and sign "*x*" under the same conditions is a relation of *hyponymy.* (In general this relation, together with its converse, will be designated as a *hyperonym-hyponym* relation.) Sign "*y*" is a *hyponym* of sign "*x*", if and only if the deno-

† Note that the argument may not be reversed to the form: the denotation class of sign "*y*" *properly includes* that of sign "*x*" and therefore the denotation class of sign "*y*" has the class attribute: "properly includes the denotation class of sign '*x*'". The latter is not a class attribute since it does not derive from a relevant property of *each* member of the denotation class of the sign "*y*". These members have only the property of "belonging to a class that properly includes the denotation class of the sign '*x*'" in common, which is trivial.

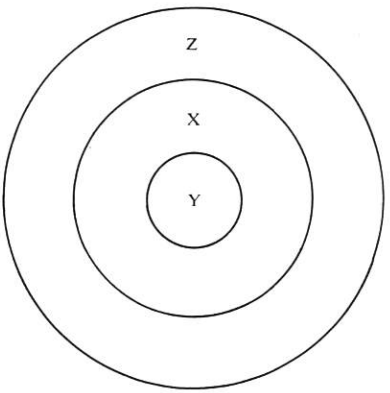
‡ The term "hyperonymy" designates the converse of "hyponymy". The latter term is used by Lyons (J. Lyons, *Structural semantics*, Blackwell, 1963; and *Introduction to theoretical linguistics*, Cambridge, 1968, especially p. 453) in much the same sense as my own term "hyponymy".

A major difference between the two notions is that Lyons regards "hyponymy" as a potentially symmetrical relation. In *Introduction to theoretical linguistics* he goes on to "defining the relationship of synonymy as symmetrical hyponymy". That is to say, according to Lyons' view synonyms are mutually "hyponyms" of one another. It would be equally valid under the same view to say that synonyms are mutually "superordinate" (Lyons prefers this to "hyperonym"). Such a use of "superordination" and "hyponymy" is strange owing to the fact that "being above" and "being below" (meanings implicit in the terms "super-" and "hypo-" themselves) are *par excellence* non-symmetrical relations.

tation class of the sign "*y*" is properly included in the denotation class of the sign "*x*".

Furthermore, if two signs "*x*" and "*y*" are both *hyponyms* of a sign "*z*", but neither of them is a *hyperonym* of the other, then the signs "*x*" and "*y*" are said to be *paronyms*† with respect to the sign "*z*", unless they have identical denotation.‡

We need not posit a *semantic feature* for every *class attribute* of a given denotation class. This is because of the hierarchical arrangement whereby a denotation class *X* which properly includes a given denotation class *Y* may in turn, itself, be properly included in yet another denotation class *Z*. In such a case the proper inclusion of the denotation class *Y* in the denotation class *Z* is automatically implied by the proper inclusion of the denotation class *Y* in the denotation class *X* and the proper inclusion of the denotation class *X* in the denotation class *Z*.



In such an instance *Y* has a class attribute, namely, that of "being properly included in *Z*", which is implied by another of its class attributes, namely, "being properly included in *X*", together with the class attribute *X* (for which we account under the heading of *X*, not of *Y*) namely, that of "being properly included in *Z*". Such automatically implied class attributes shall be considered *redundant* in a

† Cases of paronymy include instances of what is often referred to as "antonymy", cf. my article "Semantics in Axiomatic Functionalist Linguistics", *Proceedings of the Deuxième Colloque International de Linguistique Fonctionelle*, Clermont-Ferrand, 1975.

‡ If they have identical denotation, they are *synonyms*.

semantic description as a whole, and will not be used in the positing of *semantic features*.

Another way of looking at the situation outlined in the previous paragraph is by distinguishing between *direct* and *indirect proper inclusion*. If and only if a given denotation class *X* properly includes another denotation class *Y* in such a way that there is *no* intermediate denotation class which is *both* properly included in *X and* properly includes *Y*, we shall say that *X directly properly includes Y*. Otherwise we shall speak of *indirect proper inclusion*. In the diagram above there is direct proper inclusion between *X* and *Y* and between *Z* and *X*. The class *Z* indirectly properly includes the class *Y*. Cases of demonstrably *indirect* proper inclusion determine *redundant* class attributes. Only *direct* proper inclusion contributes a class attribute for which a *semantic feature* of the appropriate sign is posited in the semantic description.

If the denotation class of the sign "*x*" properly includes that of sign "*y*" and the denotation class of the sign "*z*" in turn properly includes that of the sign "*x*", then the sign "*z*" is an *indirect hyperonym* of the sign "*y*".

The sign "*x*" is a *direct hyperonym* of the sign "*y*", if and only if, in the language in question, there is no other sign "*q*", such that sign "*x*" is a hyperonym of sign "*q*", and sign "*q*" is a hyperonym of sign "*y*". In other words, if and only if, in the ascending scale of hyperonyms there is no intermediate hyperonym between sign "*y*" and sign "*x*", then sign "*x*" is a direct hyperonym of sign "*y*".

Thus the sign "horse" would be a *direct hyperonym* of "stallion", if and only if there were, in English, no sign which is "intermediate" between "horse" and "stallion" in such a way that it is a *hyponym* of "horse" but a *hyperonym* of "stallion". As a matter of fact there is, in English, the sign "adult horse" which fulfils these conditions: i.e. it is a hyponym of "horse" and a hyperonym of "stallion". Consequently, in English, the sign "horse" is *not a direct* hyperonym of the sign "stallion".

Where we talk of the converse of hyperonymy as the relation of hyponymy, the converse of direct hyperonymy is, of course, designated as a relation of *direct hyponymy*. That is to say, if sign "*x*" is a direct hyperonym of sign "*y*", then sign "*y*" is a *direct hyponym* of sign "*x*".

Signs which are paronyms of one another with respect to a direct hyperonym are in a relation of *direct paronymy*. The set of *direct*

paronyms with respect to a given sign constitutes a *direct paronymy class*.

Since each denotation class is determined by the particular class of equivalent references to which it corresponds, we may say that the class attributes of the denotation class are *selected* through certain *features* of the appropriate class of equivalent references. Consequently we may posit certain features of classes of equivalent references which are "responsible" for the selection of a denotation class with a given set of class attributes. These features, which are semantic in nature since they arise out of denotational properties of signs, may be labelled according to the class attributes of the denotation class appropriate to the class of equivalent references in question. As we have already noted, class attributes are a matter of the proper inclusion of a given denotation class in the denotation classes of other signs, but *indirect proper inclusion* contributes *redundant* class attributes. The *relevant* class attributes are only those which result from cases of *direct proper inclusion by some other denotation class*. Strictly speaking each class attribute of a given denotation class could contribute a feature to the appropriate class of equivalent references, namely, the feature by which that particular class attribute is selected. Since, however, some class attributes are *redundant*, as we have already seen, we shall not posit features to account for them when we come to a semantic description of linguistic signs. *Semantic features proper* shall only be posited on the basis of *relevant* class attributes – and, we may go so far as to say that they shall only be posited, in fact, on the basis of the *direct proper inclusion* of the denotation class of a given sign in the denotation classes of its *direct hyperonyms* in the language in question. Some of the implications of this stipulation will be left for discussion below.† For the present we state in general terms that:

THE SEMANTIC FEATURES OF A CLASS OF EQUIVALENT REFERENCES (OR OF A SIGN) ARE THOSE PROPERTIES OF THAT CLASS WHICH SELECT THE RELEVANT (NON-REDUNDANT) CLASS ATTRIBUTES OF ITS DENOTATION CLASS.

Class attributes in general have the form: "is properly included in the denotation class of the sign '*x*'". Relevant class attributes have the form: "is *directly* properly included in the denotation class of the sign '*x*'". For the sake of convenience, the class attribute "is

† Cf. p. 44.

properly included in the denotation class of the sign '*x*'" will be labelled ⟨*x*⟩ – where *x* is the label used in the description for the sign "*x*".

The semantic feature of a given class of equivalent references which is said to select the class attribute ⟨*x*⟩ has the form: "the feature which selects the class attribute: 'is directly properly included in the denotation class of the sign "*x*"'"; or at least the form "the feature which selects the relevant class attribute ⟨*x*⟩". In order to avoid having to use such lengthy designations it will be convenient to replace "the feature which selects the relevant class attribute ⟨*x*⟩" with the label **x** – with *x* being the label for the sign "*x*".

As far as labels are concerned, the *semantic feature*, the *relevant class attribute* which selects it, and the *direct hyperonym* sign which contributes that class attribute are all called by the same label, with the diacritical marks *. . .*, ⟨. . .⟩ and ". . ." to distinguish them from one another, and to serve as a reminder that the three are distinct, if related, models in theory and description.

For instance in the case of the sign "stallion", one of the relevant class attributes of the denotation class of this sign will be ⟨adult horse⟩ – on the basis of the hypothesis that the denotation class of "adult horse" directly properly includes that of "stallion", i.e. that "adult horse" is a direct hyperonym of "stallion" in English. The actual semantic feature of the sign "stallion", the feature, that is, which selects the class attribute ⟨adult horse⟩, will be labelled *adult horse*.

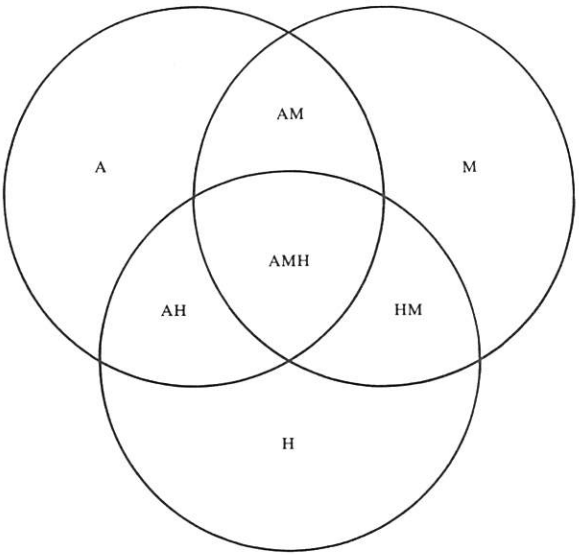
"adult horse" is a direct hyperonym of "stallion"
⟨adult horse⟩ is a class attribute of the denotation class of "stallion"
adult horse is a semantic feature of "stallion"

We said earlier that non-identical classes of equivalent references could have identical denotation classes appropriate to them. Identical denotation classes have identical sets of attributes. Consequently, signs with identical denotation classes have all their semantic features in common. The classes of equivalent references of such signs, i.e. of signs having identical denotation classes, are called *denotationally equivalent* classes of equivalent references. That denotationally equivalent classes of equivalent references should have all their semantic features in common, is intuitively very satisfactory, since this explains certain similarities between the "meanings" of signs – similarities that are not accountable for on the basis of their intrinsi-

cally distinct classes of equivalent references, but yet are intuitively recognized.

For instance, the two signs "stallion" and "adult male horse" have, *a priori*, non-identical classes of equivalent references.† Intuitively speaking the two signs have the same, or very similar, "meaning". This intuitively recognized fact is accounted for in "axiomatic semantics" by the assigning of the same set of semantic features to both the signs. This is made possible by the fact that the two classes of equivalent references have identical denotation classes (all members of the denotation class of "stallion" are also members of the denotation class of "adult male horse" and *vice versa*). It is intuitively satisfactory, as well as theoretically sound, that the signs "stallion" and "adult male horse" should both have the same set of semantic features: *adult male equine*, *male horse*, *adult horse*.

These features are established on the basis of direct proper inclusion of the denotation class of "stallion" (or of "adult male horse") in the denotation classes of "adult male equine", "male horse" and "adult horse" respectively (cf. diagram).



Key

A: denotation class of "adult equine"

M: denotation class of "male equine"

† That is to say, *intrinsically*, they have different *contents*.

H: denotation class of "horse"
AM: denotation class of "adult male equine"
AH: denotation class of "adult horse"
HM: denotation class of "male horse"
AMH: denotation class of "adult male horse", and of "stallion"

The semantic features of "stallion" (and the same goes for that of "adult male horse") are not *adult*, *male* and *horse*; this could only be the case if the signs "adult", "male" and "horse" were *direct hyperonyms* of "stallion". That they are not, is demonstrated by the fact that the denotation classes of "adult", "male" and "horse" do not directly properly include the denotation class of "stallion", because the English language has the signs "adult horse", "adult male equine" and "male horse", which are intermediate between the denotation classes of "adult", "male" and "horse" and the denotation class of "stallion".

$A \supset AH$ and $AH \supset AMH \rightarrow A \supset AMH$
$H \supset AH$ and $AH \supset AMH \rightarrow H \supset AMH$
$A \supset AM$ and $AM \supset AMH \rightarrow A \supset AMH$
$M \supset AM$ and $AM \supset AMH \rightarrow M \supset AMH$
$H \supset HM$ and $HM \supset AMH \rightarrow H \supset AMH$
$M \supset HM$ and $HM \supset AMH \rightarrow M \supset AMH$

From the above interpretation of the diagram on p. 43 it is clear that the proper inclusion of AMH (the denotation class of "stallion"/ "adult male horse") in each of the classes A, M and H (the denotation classes of "adult", "male" and "horse" respectively) is *implied* and consequently is a case of *indirect proper inclusion*. Therefore, some of the class attributes of the denotation class of "stallion", namely the class attributes ⟨adult⟩, ⟨male⟩ and ⟨horse⟩, are *redundant*. On the other hand, the class AMH is *directly properly included* in each of the classes AM (i.e. the denotation class of "adult male equine"), AH (i.e. the denotation class of "adult horse") and HM (i.e. the denotation class of "male horse"). Thus the relevant class attributes of the denotation class of "stallion" are ⟨adult male equine⟩, ⟨adult horse⟩ and ⟨male horse⟩, and for each of these is posited a semantic feature. What goes for the denotation class of "stallion" goes also for the identical denotation class of "adult male horse"; thus both signs have the semantic features *adult male equine*, *adult horse* and *male horse*.

The assignation of features in phonology is a comparatively simple process for the reason that phonology deals with a closed set of a relatively small number of items, whereas the items (signs) in semantics form an open set consisting of a potentially infinite number of members. Also, phonology has the advantage of a well developed science of phonetics which serves as a basis for labelling the distinctive features of phonemes.

In the case of semantic features the inventory of signs to which such features can in principle be assigned is an open set, which precludes the possibility of exhaustive dictionary-description of the set.† "Axiomatic semantics" concerns itself with stating a theory and describing a procedure by which semantic features may consistently be assigned to signs, and to giving samples of the procedure. No attempt can be made at giving an inventory of all the signs of a language and their semantic features.

It is possible, as we have seen, to assign semantic features to any sign whose denotation class is properly included in the denotation class of at least one other sign. This however is impossible if the denotation class in question is not properly included in any other denotation class. Such is possibly the case with the denotation class of the sign "entity" (in the widest sense) in which all other denotation classes may be properly included, but which, itself, is not properly included in any other denotation class.‡ In that case this denotation class is the *universal denotation class*. The sign "entity" as *universal hyperonym* would have no further semantic features. It is, however, conceivable that a language may contain no single *universal hyperonym*, but rather *several* signs which are hyperonyms of separate "universes" consisting of large inventories of signs, without there being any hyperonyms to the former signs themselves.

Sometimes the difficulties of assigning features to signs arise

† Note, however, that sign-inventories may be economically restricted to inventories of *simple* signs. These inventories are, in principle, closed sets, and are capable of exhaustive semantic description in terms of denotation. Subsequently we should need to devise a "syn-semantics" that provides for exhaustive description of all the signs of a language by "predicting" the denotation of *complex* signs (an infinite but denumerable set) from their component *syntagmemes* (see Def. 10, p. xxvi). Syn-semantics is envisaged as a part of Axiomatic Functionalist linguistics. Syn-semantic description does, however, clearly presuppose the ability to describe the denotation of simple signs (i.e. the *prior* development of a denotational sign semantics). It is for this reason that denotational sign semantics is my prior – and, for the purpose of this volume, my sole – concern.

‡ This statement does not claim any "validity", being merely an untested hypothesis about English.

simply because we have never considered the possibility of these signs having hyperonyms. Many signs appear at first sight to have denotation classes that are not properly included in that of any other sign that comes to mind. Such may be the case, for instance, with the signs "this" and "that", whose denotation classes have hitherto not been the subject of scrutiny, since they were not properly speaking considered to have "denotational meaning". It is my contention that these and all other signs have "denotational meaning" insofar as they have conventionally determined information values (have denotation classes corresponding to them) and insofar as their realizations in speech indicate ostensible features of situations. One might consider tentatively that the signs "this" and "that" are both hyponyms, and probably direct hyponyms, of the sign "a specific" (cf. "a specific book" is a hyperonym of "this book" and of "that book"), and that, therefore, both "this" and "that" can be assigned the semantic feature *a specific*. Even in the case of another problematic sign, the sign "if", it would appear to be the case that that sign is a hyponym of "relation".†

The difficulties of assigning semantic features to signs are particularly marked, as may well be expected, in areas where the actual denotata belonging to the denotation classes in question are themselves vaguely understood, because there has been no previous study and classification of them as entities.

Where other natural sciences, such as botany or zoology, for instance, have introduced order among denotata by scientific study and classification of the denotata themselves one has the aid of these sciences in protocolizing data for the setting up of semantic features. It is in domains where no classification has been provided by empirical sciences that problems arise in the handling of denotation classes. The situation here is analogous with trying to set up distinctive features in phonology without the aid of the science of phonetics.‡ In the case of "verbs", for instance, no empirical science has set up a

† One should not be misled into thinking that, say, "if" denotes "ifness", and therefore – paradoxically enough – "if" and "ifness" (if there is such a sign as the latter in English) are denotationally equivalent. As a matter of fact, utterances of "if" denote single instances of a particular relation (of "ifness"), whereas utterances of "ifness" would denote the class (genus) of these relations.

‡ As we would inevitably have difficulties with phonological entities if we did not, *via* phonetics, know something about the physical or physiological nature of their realizations, so we inevitably have problems with the denotation of signs unless we know something about the nature of the entities denoted by utterances of those signs.

systematic classification of the various types of action, and thus it may be difficult to assign features to "verbs" in practice.

Both phonology and semantics fall back to a certain extent on the science or sciences of the borderline domain which links them to the extra-linguistic world.† In the case of phonology, the borderline between it and the extra-linguistic world has been thoroughly explored by phonetics. Semantics is less fortunate, in that only certain sections of its borderline with the extra-linguistic world of denotata, have been studied by the empirical sciences. Thus semantics must inevitably suffer from shortcomings in the practical work of assigning semantic features to the signs of a language. Such shortcomings are due less to the inadequacy of semantic theory, than to the inevitably tentative fumblings of the descriptivist in the twilight zone of unexplored areas of the world of denotable entities.

† For protocolized data used in the testing of hypotheses.

VI

Adequacy of Semantic Characterization

Semantic features must be assigned to signs in the description of a language in such a way that no two signs are given identical sets of features unless there is reason to believe that these signs have identical denotation classes. This is a strict logical necessity since the possession of identical sets of features is tautologous with the possession of identical sets of hyperonyms, and this again is tautologous with the possession of denotation classes with identical sets of class attributes. Two or more denotation classes that do not differ in at least one class attribute must, of course, be identical denotation classes.

It must at this state be noted that the setting up of semantic features is envisaged as a process simultaneous with the "discovery" of the *set of direct hyperonyms of given signs in given languages.* As linguistic descriptions are always limited to one language at a time, we do not go beyond the means presented by the language in question when trying to determine the direct hyperonyms (and through these the *semantic features*) of a particular sign. Strictly speaking, therefore, the "discovery" of some *class of denotata* (however specified) which directly properly includes a given denotation class, does not lead to the positing of a *semantic feature* unless that class of denotata is actually *the denotation class of a sign in the language in question.* The proper inclusion of a denotation class in *any class of denotata* is, in some sense, a class attribute of that denotation class, and if that class attribute is not implied by other class attributes, it may, in a marginal sense, be a relevant (i.e. direct) class attribute. This, however, would not be taken as sufficient reason for positing a semantic feature on the strength of the class attribute in question. Our additional requirement states that semantic features should derive from the *direct hyperonyms* of signs – the latter being, themselves, signs in the same language. Consequently, we do not accept semantic features which do not derive from direct hyperonyms of a sign within the same language-system.

This does not mean that in the labelling of *semantic features* we

may not resort to a kind of short-hand, utilizing symbols from other systems to replace parts of otherwise cumbersome, complex semantic features. This, however, is an altogether different point from justifying how the semantic feature (not the *label* for the semantic feature) was arrived at. Shorthand devices in labelling have to do with relative elegance – simplicity – in the description, and may be used as such, as long as it is possible to point to, and reconstruct, the direct hyperonym designated by the label. Thus a semantic feature *vehicle whose potential speed exceeds three hundred and forty metres a second* – a feature which might figure in the semantic characterization of "supersonic plane" – might conveniently be labelled *vehicle with a potential speed over 340 m./sec.*, making use, in the label, of shorthand devices from the system of number-writing, and the terminology of physics.

With reference to the requirement that signs with non-identical denotation classes must have non-identical sets of semantic features assigned to them, we find in the comparison of the denotation of signs with identical sets of features a convenient way of testing the adequacy of semantic characterizations in a given description. We might encounter a case where two or more signs of a language have demonstrably non-identical denotation classes, and find that the semantic features of these signs do not account for the denotational differences, in that the signs have been assigned identical sets of semantic features. In a case like this we are forced to admit that there is a "gap" in those sets of semantic features, and we must look for further data from which we can arrive at further direct hyperonyms of the signs in question – direct hyperonyms which they do not have in common. Unless we do so, the description will be inadequate by virtue of being false, or, at the very least, misleading.

This latter point can be illustrated by the following hypothetical situation:

Sign "*x*" and sign "*y*" both have the semantic features **p** and **q** – that is to say, both "*p*" and "*q*" are direct hyperonyms of "*x*", as well as of "*y*". To state that sign "*x*" and sign "*y*" have identical sets of semantic features is to imply, *ipso facto*, that "*x*" and "*y*" are denotationally equivalent – i.e. have identical denotation classes.

On the other hand, by a simple comparison of the denotation classes of sign "*x*" and sign "*y*" (having observed how informants use utterances of these signs) it can, in our hypothetical instance, be determined that there is at least one member of the denotation class

of "*x*" which is not a member of the denotation class of "*y*", and *vice versa*. This being the case, we have demonstrated that sign "*x*" and sign "*y*" are not denotationally equivalent; they do not have identical denotation classes.

If, therefore, we allow the description simply to state that both "*x*" and "*y*" have the semantic features *p* and *q*, and *only* those semantic features, then the description will, falsely, or, at least, misleadingly, imply that "*x*" and "*y*" are denotationally equivalent – which we know is not the case.

To avoid such contradictions in the description we should, in a case like the hypothetical instance above, accept the evidence indicating the non-identity of the denotation classes of "*x*" and "*y*", and renew our attempts at finding direct hyperonyms of each of the signs respectively, in such a way as to arrive at semantic features which they do not have in common. Until such a time as we find such features, the sets of semantic features cannot, by virtue of their inadequacy, be closed. They contain vital "gaps" whose presence must, at the very least, be indicated; "gaps" which must be filled if adequacy is to be achieved in the description.

In a linguistic description, as it may be noted from the foregoing, we should require the semantic characterization of signs to be *as adequate as possible*. In what follows, therefore, it will be necessary to specify what is meant by *adequate semantic characterization* – what conditions, in other words, a set of semantic features characterizing a given sign has to fulfil in order to be considered adequate.

> *A set of semantic features constitutes an adequate semantic characterization of a sign "x", if and only if the class of denotata specified by the intersection of the denotation classes of the direct hyperonyms from which the semantic features were derived is identical to (is in total overlap with) the denotation class of the sign "x".*

An adequate semantic characterization of any given sign should indicate which denotata are, and which denotata are not, potential members of the denotation class of that sign – and it should do this by reconstructing that denotation class as being the intersection of certain other classes (i.e. the denotation classes of the set of direct hyperonyms).

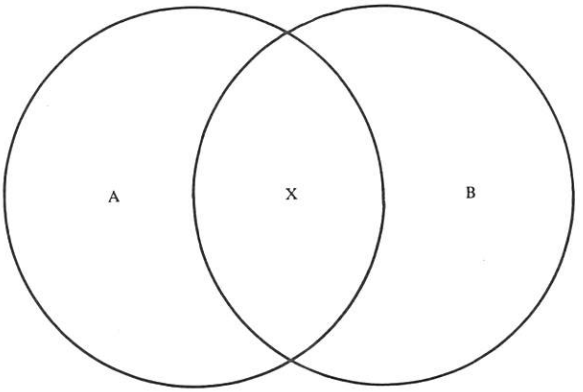
Within the approach adopted by "axiomatic semantics" – a denotational approach to signs – the relevant semantic domain of

any sign is, by definition, its appropriate denotation class. Describing that semantic domain adequately is, therefore, tantamount to giving an optimally precise specification of the appropriate denotation class (*qua* class of denotata). This does not mean that we require denotation classes to be specified as to rigid, listable membership. It is required, rather, that the *potential* membership of each denotation class should be accurately described together with its unambiguous limitations, as well as, where appropriate, its open-endedness. A denotation class, though it may be an open set, is, as it were, open only in certain directions. It *unambiguously* includes certain denotata, while equally *unambiguously* excluding certain others,† and is, *in that sense*, relatively clearly delimited as to its membership. The set of semantic features is to be selected in such a way that it does justice not only to the points on which denotation classes have clearcut boundaries, but also to the points where these boundaries are vague or blurred. It is in this sense that we should conceive of an accurate description of the delimitation of denotation classes, not in the sense that the description should introduce or indicate rigid boundaries where no such rigid boundaries can be evidenced.

Furthermore, if it is found that there are utterances which must, *for reasons of consistency in the description as a whole*, be assigned to a given sign, but, at the same time, that these utterances denote entities that do not belong to the intersection of the denotation classes of the direct hyperonyms from which the semantic features are derived, then that set of semantic features must be considered inadequate – *by virtue of giving a characterization which is too "narrow"*. The set of semantic features ascribes to the sign in question a denotation class identical to the intersection of the denotation classes that directly properly include that denotation class. It is, therefore, self-contradictory for utterances of that sign to denote entities that are explicitly excluded from the intersection with which the denotation class of the sign is purported to be identical. One can only conclude in the face of such self-contradiction in the description, that the intersection, and the set of semantic features which indirectly produce that intersection, must be inadequate, and requires revision in such a way that all potential denotata of utterances of the sign are accommodated.

† Compare Prieto's notions concerning the "class of possibilities admitted" and the "class of possibilities excluded" from the interpretation of a sign. L. Prieto, *Principes de noologie*, Janua Linguarum Series Minor, Mouton, The Hague, 1964, pp. 38–40.

If, for example, we take account, in a description of English, of realizations of "He walks fast", we must conclude that there are *some* denotata that belong to the denotation class of "to walk", but not to the intersection X on the diagram below, i.e. the intersection of the denotation classes of "to go on foot" and "to proceed slowly". Consequently, that intersection is too "narrow" to accommodate all members of the denotation class of "to walk", and the factors producing that intersection are not suitable for defining that denotation class. The set of semantic features *to proceed slowly* and *to go on foot* does not, in that case, constitute an adequate semantic characterization of the sign "to walk".

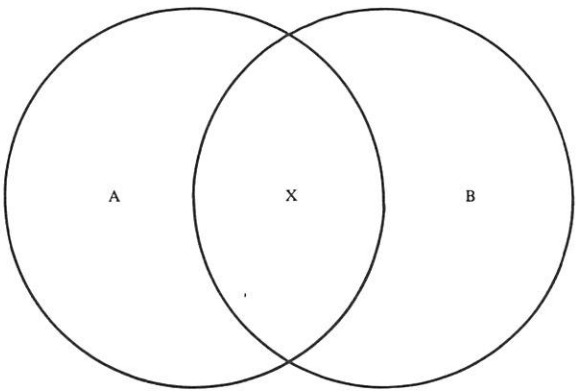


Key:
A: denotation class of "to go on foot"
B: denotation class of "to proceed slowly"
X: the intersection purporting to define the denotation of "to walk", on the (demonstrably false) assumption that its semantic features are *to go on foot* and *to proceed slowly*

Also, if the intersection of the denotation classes that directly properly include a given denotation class (that of the sign whose semantic features are under consideration) contains denotata which cannot be denoted by utterances of the sign in question, then the set of semantic features posited on the basis of direct proper inclusion must be considered inadequate – *by virtue of giving a characterization that is too "wide"*. In this case the set of semantic features ascribes to the sign, absurdly, a denotation class including entities that cannot be denoted by utterances of the sign, and are, *ipso facto*, excluded from the denotation class of the sign. One can only con-

clude, in the face of such absurdity in the description, that the set of denotation classes producing the intersection in terms of which the denotation class of the sign in question is to be defined is inadequate. The set of semantic features from which this intersection is indirectly derived must then be revised in such a way that the resulting intersection does not contain denotata which are manifestly not potential denotata of utterances of the given sign.

If, for example, we take account, in a description of English, of realizations of "I had a house built for me to live in", "He had a palace built for him to live in", etc., we must take cognizance of the fact that the intersection X in the diagram below (i.e. the intersection of the denotation classes of "building" and "object suitable for habitation") cannot be used for defining the denotation class of, say, "cottage", since there are denotata belonging to the intersection X which are clearly not potential denotata of utterances of "cottage", such as, for instance, *palaces*. As this intersection is too "wide" to serve as a definition of the denotation class of "cottage", its factors are considered inadequate for semantic characterization of that sign. In other words, in this instance, the set of semantic features *building* and *object suitable for habitation* does not constitute an adequate semantic characterization of the sign "cottage".



Key:
A: denotation class of "building"
B: denotation class of "object suitable for habitation"
X: the intersection purporting to define the denotation of "cottage", on the (demonstrably false) assumption that its semantic features are *building* and *object suitable for habitation*

To sum up in a somewhat more formal way, if a sign "*x*" has the members {utterance$_1$, utterance$_2$, utterance$_n$}, then the denotation class of the sign "*x*" (Den. *X*) includes, by definition, *all and only* the denotata of utterances in that set.

Sign "*x*" can be adequately characterized as to its denotation, if and only if Den. *X* can be *defined.* Den. *X* can be defined as the intersection of a given set of denotation classes *P*, *Q*, etc., if and only if Den. *X* is *identical* (or at least *not demonstrably* different),† as to membership and restrictions upon membership, to the intersection of *P*, *Q*, etc.

Consequently, if any utterance of the sign "*x*" denotes an entity which does not belong to the intersection of *P*, *Q*, etc., or, alternatively, an entity belonging to that intersection is not a potential denotatum of any member-utterance of the sign "*x*", then, Den. *X* and the intersection of *P*, *Q*, etc. being *non-identical*, that intersection cannot be used for defining Den. *X*. This being the case, characterizing the semantic identity of sign "*x*" in terms of the features **p***, **q***, etc. – which implies that Den. *X* is being, falsely, identified with the intersection of *P*, *Q*, etc. – is inadequate by virtue of implying a conclusion about the data which is demonstrably refuted by the data.

If and only if the data do not indicate non-identity between the denotation class of sign "*x*" and the intersection of the denotation classes of the direct hyperonyms "*p*", "*q*", etc., from which the semantic features of sign "*x*" are derived, that set of semantic features constitutes an adequate semantic characterization of sign "*x*".

It has already been indicated that the semantic characterization of signs should be performed in terms of other signs in the same language (direct hyperonyms). In fact the setting up of semantic features within a linguistic description is directly connected with fixing the "hierarchical" position of signs in the *semantic structure* of a language – since this position is determined, as we shall see later (Chapter XII), by the hyperonym-hyponym relations of signs to one another. There is, therefore, every reason to insist that the semantic properties of signs should be determined *with reference to the semantic structure* (*the hierarchical network of signs ordered by hyperonym-hyponym relations, discussed in Chapter VII*) *to which they belong.* The kind of semantic description envisaged is based on

† Though we cannot positively demonstrate such identity, we can posit it as a hypothesis which is verifiable, and which we take to be valid in the absence of refutation.

external evidence – the denotata and denotation classes – but is given in relative terms, not by reference to "absolute" standards. Its adequacy is a matter of how accurately it shows the denotational interrelations between signs in one language, as evidenced by the entities and classes of entities corresponding to utterances and classes of utterances respectively. Linguistic descriptions, if they are to stay within the bounds of what is verifiable within the discipline of linguistics, should not try to describe "meaning" in "absolute", universal terms,† but should content themselves with the, perhaps more modest, but at least feasible, task of description in "relative" terms.

As a final point on the subject of adequacy in the semantic characterization of signs, an additional requirement on individual semantic features must be mentioned – a requirement necessary for preventing the inclusion of trivial and "uninformative" semantic features.

A semantic feature of the sign "x" must not contain as one of its terms either the sign "x" itself or a synonym of the sign "x".

This stipulation is made in order to avoid the use of trivial facts in statements of semantic features, and in their derivation. If, for instance, we were to derive a semantic feature of "dog" from the fact that "cat or dog" is a direct hyperonym of "dog" (assuming that this *is* the case, wrongly, in my opinion), we should merely be describing the trivial fact that the logical sum of two disjunct denotation classes must, by tautology, properly include (and may *directly* properly include) each of the denotation classes in question.

To give other instances, it may be the case that "stallion or mare" has a denotation class identical to the denotation class of "adult horse" (whether it does or not is not our concern at present), and could, therefore, be used as an alternative label for the feature *adult horse*. Yet to state that "stallion" is a hyponym of "adult horse" (which is implied by giving the feature *adult horse* to the sign "stallion") gives information about hyperonym-hyponym relations in English, information that is over and above what is "true by tautology", whereas to state that the denotation class of "stallion" is properly included in the sum of that class and the denotation class of "mare" (implied by using the feature *stallion or mare* to characterize "stallion") is to state a tautology.

Similarly, on the assumption that the English syntagm "brother or sister" is denotationally equivalent to the word "sibling", the trivial *brother or sister* could replace *sibling* as one of the semantic

† This point is further developed in the final chapter of Part I.

features of "brother" (and also of "sister") – were it not for the foregoing requirement.

It is indicated in the examples listed here, that the requirement for eliminating trivial semantic features – or trivial labels for semantic features – is a desirable, and, from the point of view of adequacy, necessary requirement. As a justification for introducing the requirement, one need only refer to the accepted ban, in definitions – and, as we have indicated, semantic characterizations are definitions of a kind – on the use of the *definiendum* (in this case the semantic identity of the sign "*x*") as one of the terms in the *definiens* (in this case the semantic features of the sign "*x*").

VII

The Identity of Signs

With respect to the problem of sign identity, it is important to note, initially, that neither of the positive criteria – whether that of "form", or that of "denotation" – nor the two taken together, can provide a both sufficient and necessary condition which would enable us to "prove" sign identity in linguistic descriptions in a theorematic way. We cannot, therefore, say that, provided certain conditions hold, and only if these conditions hold, sign identity is "*proved*" *in the description*. We can only make hypothetical claims, by stating, that is, that if and only if a certain set of conditions holds sign identity is *not refuted in the description*.

We can outline the position with regard to the use of "form" and "denotation" as criteria for sign identity in the following way:

(*a*) the members of any set of utterances having identical phonological form (*formally similar utterances*, cf. Chapter II), *may or may not* be members of one and the same sign.
Therefore: IDENTITY OF PHONOLOGICAL FORM IS NOT A SUFFICIENT CONDITION FOR SIGN IDENTITY (i.e. formal similarity does not imply "equivalence");

(*b*) the members of any set of utterances corresponding to a given class of denotata, *may or may not* be members of the same sign.
Therefore: IDENTITY OF CORRESPONDING CLASS OF DENOTATA IS NOT A SUFFICIENT CONDITION FOR SIGN IDENTITY (i.e. identity of denotation does not imply "equivalence");

(*c*) the members of any set of utterances having identical phonological form and corresponding to a given *class* of denotata, may or may not exhaust the class of utterances belonging to one sign.
Therefore: IDENTITY OF PHONOLOGICAL FORM *and* OF CORRESPONDING CLASS OF DENOTATA IS NOT A NECESSARY CONDITION FOR SIGN IDENTITY (i.e.

"equivalence" does not imply formal similarity and denotational identity).

By (*a*) we mean that the fact that a set of utterances has the same phonological form, say /her/, is no guarantee that all the utterances in that set belong to one and the same sign – they may belong, in this example, to two distinct signs "hair" and "hare".

By (*b*) we mean that the fact that a set of utterances corresponds to a given class of denotata, say the class of adult human males, is no guarantee that all the utterances in that set belong to one and the same sign – they may, in this particular instance, belong to several signs "man", "bloke", "chap", "fellow", etc.

By (*c*) we mean that the fact that a set of utterances both has the same phonological form, say /iz/, and corresponds to a given class of denotata, say the class of properties of "being more than one" (plurality), is no guarantee that this class exhausts, in our example here, all utterances of the sign "(plural)" – to this sign may belong also utterances with the phonological forms /z/, /s/, /rn/ (oxen), etc.

Before going on to outline my proposals for dealing with the identity of signs, I must reiterate some of what has been said about the notions *form*, *reference*, *utterance* and *sign*, in foregoing chapters.†

Utterance is a model for a single speech event. *Form* is set up to account for the "meaningful element of form" in an utterance, and as such *has* phonological form but is not itself phonological form (it is a model on a different level from phonological form). *Reference* is a model set up in order to account for the "formally realized element of meaning" present in an utterance, and as such *has* an underlying denotatum, but is not itself that denotatum (it is a model on a different level from denotatum). *Sign* is defined as a *class of equivalent utterances*. Equivalence between utterances is tautologous with their membership in one and the same sign; "utterance *A* is equivalent to utterance *B*" being a tautology for "utterance *A* and utterance *B* belong to the same sign". The conditions of "similarity" between utterances were deduced from statements about *form*, *phonological form*, *reference* and *denotatum* in Chapter II, but it was also shown that "similarity" was neither a sufficient nor a necessary criterion for sign-identity (i.e. equivalence). Equivalence, we may say, is not deducible from the notions *utterance*, *form*, *reference* and *denotatum*, and any attempt to define equivalence in terms of these notions is

† Cf. Chapter II.

clearly circular and trivial. It is for this reason that the notion *equivalence* is not defined in the present theory (except by tautology with sign-identity). Consequently the notion *sign-identity* remains primitive in the theory, and statements of identity of signs are put forward as *hypotheses* in the description. The nature of a hypothesis, both its advantage and disadvantage, is that it cannot be proved in an empirical sense. It can only be disproved, or rather refuted, when by confronting it with the "facts" it purports to describe, it is shown to be contradicted by these "facts", or when a better, more satisfactory, more adequate, or more simple hypothesis is produced to take its place. A hypothesis is not a scientific hypothesis unless it is *in principle refutable*, i.e. it can be confronted either directly or through other hypotheses that it implies, with the facts to which it applies. Each hypothesis is valid, unless and until it is refuted or replaced by a more adequate or a simpler hypothesis. The hypotheses stating sign-identity in a linguistic description I shall henceforward refer to as *identity-hypotheses*. All hypotheses included in a description are hypotheses that have been subjected (and could again be subjected) to attempted refutation, but have not been refuted – this in itself serving as a guarantee that all the identity-hypotheses which are retained are valid, as far as any hypothesis can ever be valid.† The actual identity-hypotheses, as I have said, belong not to the theory, but to individual descriptions of languages by application of the theory. It is then the task of the theory to provide the model for actual identity-hypotheses, and to produce a theory for "making and breaking", that is to say, setting up and refuting, identity-hypotheses.

In what follows, I shall attempt to deduce a number of theorems from which in turn it is possible to compute the types of identity-hypotheses which may be made in a description, and to determine which hypotheses are valid. It will, therefore, be possible in any descriptive application of the theory, to make any of the permissible types of hypothesis about any set of utterances, or set of sets or subsets of utterances, and then to attempt refutations of these hypotheses by confrontation with the data being described. It should be noted that the theorems about to be outlined below, and the types of possible hypothesis which are models for actual hypotheses, belong to the theory, the principles of verification of hypotheses belong to the theory of hypotheses in general, and the making of actual identity-hypotheses, and attempted refutation of these hypotheses

† Note that no hypothesis can ever be elevated to the status of "law".

belongs to the realm of descriptive procedures. The final statement of an inventory of signs should contain only unrefuted hypotheses (but this is not to say that these hypotheses are not *still refutable*†).

For deducing the theorems of sign identity I shall employ, among others, the following notions, used to designate certain sets with which we have to deal in the calculus.

(1) CLASS OF DENOTATA
Any class of denotata corresponding to any set of utterances however established.

(2) FORM CLASS (of utterances)
A class of formally similar utterances (cf. Chapter II).

(3) DENOTATION CLASS
A class of denotata corresponding to one sign (i.e. to a class of equivalent utterances).

THEOREMS

General Consistency Theorems

These theorems do not make use of either the criterion of "form" or that of "meaning", and, therefore, it is convenient to separate them from "formal" and "denotational" theorems.

(I) General Consistency Theorem I (G.C.T. I)

No two utterances P and Q, such that they are members of signs differing in at least one grammatical constituent, may be members of one and the same sign.

Explanation

We may not assign P and Q to one and the same sign, either because P belongs to a complex sign containing the grammatical constituents x and y, whereas Q must be accounted as belonging to a complex sign containing the grammatical constituents, say z and y; or because P belongs to a simple sign containing the unique constituent x, and Q to a simple sign containing the unique constituent z.

It is hardly necessary to point out that signs differing in at least one grammatical component are, *ipso facto*, *different* signs. Further-

† That is to say, subject to testing by confrontation with the data.

more, no single instance of a sign may represent *both* one and the same sign *and* two different signs.

By the law of excluded middle, any two utterances P and Q, being non-identical utterances, are either members of one and the same sign, or members of different signs.

If utterance P is such that it must be assigned to a sign containing the grammatical constituent x, and Q such that it must be assigned to a sign not containing the constituent x (but some other constituent z), then it follows that, assigning P and Q to one and the same sign implies that this latter sign represents two different signs. This we said was absurd, and, therefore, under the stated condition, P and Q cannot be assigned to one and the same sign. That is to say, the theorem is demonstrated.

Illustration

We are obliged, in a description of English, to set up two different signs "wheatflower" and "wheat flour", since some utterances with the phonological form /(h)uRit-flaur/ have to be assigned to a complex sign with the constituents "wheat" and "flower", while others with the same phonological form have to be assigned to a different complex sign with the constituents "wheat" and "flour".

(II) General Consistency Theorem II (G.C.T. II)

> No two utterances P and Q, such that p is a member of a *simple* sign and Q is a member of a *complex* sign may be members of one and the same sign.

The classification of signs (Chapter I) subdivides signs into two discrete categories: *simple* and *complex*. No single instance of a sign may belong to both of these categories – that is to say, by the law of excluded middle, any given sign is either simple or complex, but not both.

Also by the law of excluded middle, any two utterances P and Q, being non-identical utterances, belong either to one and the same sign, or to two different signs.

If, however, P is a member of a simple sign and Q a member of a complex sign (or *vice versa*), then P and Q cannot be assigned to one and the same sign without implying that this latter sign is both simple and complex. This, however, is absurd, and, therefore, the statement contained in the theorem is demonstrated.

Illustration

By virtue of this theorem alone, we are obliged, in a description of English, to set up two different signs "feet" and "feat", since some utterances with the phonological form /fRit/ need to be assigned to a *simple* sign ("feat"), and others to a *complex* sign with the constituents "foot" and "(plural)".

(III) General Consistency Theorem III (G.C.T. III)

No two utterances *P* and *Q*, such that *P* is a member of a *morphological complex* and *Q* is a member of a *syntactic complex* may be members of one and the same sign.

The classification of signs (Chapter I) subdivides complex signs into two discrete categories: morphological complex and syntactic complex. No single instance of a complex sign may belong to both of these categories.

As we have said, two utterances *P* and *Q*, being non-identical utterances, belong either to one and the same sign, or to two different signs.

If, however, *P* is a member of a morphological complex, and *Q* is a member of a syntactic complex, then assigning *P* and *Q* to the same sign would imply that this latter sign is both a morphological complex and a syntactic complex. This is absurd, and, consequently, the statement in the theorem is demonstrated.

Illustration

By virtue of this theorem alone, we must distinguish, in a description of English, between two signs "greatness" and "great ness", for some utterances with the phonological form /greit-nes/ must be assigned to a morphological complex (consisting of the monemes "great" and "-ness" in a non-ordering relation), whereas other utterances with the same phonological form must be accounted as members of a syntactic complex (consisting of the words "great" and "ness" (promontory) in a syntactic relation).

(IV) General Consistency Theorem IV (G.C.T. IV)

No two utterances *P* and *Q*, such that they belong to two syntactic complexes differing in at least one syntactic relation may be members of one and the same sign.

From the definition of *sign* (Chapter I) it emerges that each syntactic complex consists of certain constituent signs standing in certain syntactic relations to one another. By definition, therefore, syntactic complexes differing in at least one syntactic relation are, *ipso facto*, *different* signs.

As we have said in the previous demonstrations, two utterances P and Q are either members of the same sign or of different signs.

If, however, P is an utterance that must be acounted for as a member of a syntactic complex $R_{syn}1\ (x,y)$, and Q must be accounted for as a member of a syntactic complex $R_{syn}2\ (x,y)$, where $R_{syn}1$ and $R_{syn}2$ stand for different syntactic relations, then assigning P and Q to the same sign implies that this latter sign represents two *different* signs. This, we have said, is absurd, and therefore, the statement contained in the theorem is demonstrated.

Illustration

Even regardless of whether they contain the same constituents (which is not the case), we are obliged, in a description of English, to distinguish between two signs "stock-cubes" and "(to) stock cubes", for some utterances with the phonological form /sTok-kiubS/ need to be assigned to a syntactic complex whose constituents are in a syntactic relation of "determiner-nominal", whereas other utterances with the same phonological form need to be assigned to a complex whose constituents stand in a relation of "predicate-object".

Formal Theorems

Called "formal" because they make use of the notion *form class* in their calculus, but do not make use of the notion *class of denotata*. Thus we can set these theorems apart from "denotational theorems".

Formal Theorem I (F.T. I) – Formal Theorem IV (F.T. IV)

A sign is a class of equivalent utterances. A form class is a class of formally similar utterances. Formal similarity determines a form class, whereas equivalence determines the sign (as a class). Formal similarity, by definition, is not tautologous with equivalence, but is independent of it. Consequently the classes of utterances that these two relations determine are not necessarily coextensive with one another either, but are independent of one another, that is to say: "*form class*" *is not necessarily coextensive with* "*sign*". As, however,

the members of both types of class are utterances, form classes and signs can be brought into the following relations with one another:

(1) sign x properly includes form class y;
(2) form class y properly includes sign x;
(3) sign x and form class y overlap partially, but neither properly includes the other;
(4) sign x and form class y overlap totally, and mutually include one another;
(5) sign x and form class y do not intersect at all.

The fifth and last possibility is trivial and uninteresting from our present point of view, because although it is possible for a *given* form class y not to intersect with a *given* sign x, it would be absurd to even conceive of a sign x which did not intersect at all with *some form class* y, in the language in question. Such a sign x would have *only utterances without phonological form*; it would be manifestly absurd in a linguistic description to posit such signs.

In consequence of the four possible relations between a sign x and some form class y, we can derive four theorems as follows:

F.T. I
In any given language there may be a sign x such that all the members of some form class y belong to the sign x, but not *vice versa*. (This is when sign x properly includes form class y.)

F.T. II
In any given language, there may be a sign x such that all its members are members of a form class y but not *vice versa*. (This is when the sign x is properly included in the form class y.)

F.T. III
In any given language there may be a sign x such that some of its members are members of the form class y, and not all members of the form class y are members of the sign x. (This is when sign x and form class y overlap partially.)

F.T. IV
In any given language there may be a form class y such that all its members are also members of a sign x, and *vice versa*. (This is when there is total overlap between the sign x and the form class y.)

Explanation

F.T. I means that in some cases the whole of a given form class will constitute a subset of a sign, together with other sets or subsets belonging to other form classes (or at least one other such set or subset). Sign x = Form class y + Form class z + etc. (or $\emptyset$).

F.T. II means that in some cases one form class may be "divided" among two or more signs, in such a way that it constitutes the whole class of at least one of those signs.

F.T. III means that in some cases a form class may be "divided" up between at least two signs, in such a way that its resulting subsets constitute subsets of those signs.

F.T. IV means that in some cases the whole of a form class may constitute the whole of a sign. In such cases, and such cases alone, there is an exact correspondence between a class of formally similar utterances (form class) and a class of equivalent utterances (a sign).

Grammatical Distribution Theorem (G.D.T.)

Two or more classes of utterances that do not have the same distribution in grammatical contexts cannot constitute separate signs with identical denotation classes, respectively.

Explanation

This theorem requires that synonyms should fulfil the condition of having *identical* distribution in *grammatical* contexts. It should be noted that the theorem is designed for attempted refutation of the hypothesis that two (or more) classes of utterances constitute separate synonymous signs, but it should also be noted that demonstrating identical distribution between classes of utterances (or failing to demonstrate a difference of distribution between them) does not demonstrate that they belong to synonyms.

Assuming that two classes of utterances $\{a\}$ and $\{b\}$ constitute, respectively, the signs x and y, and that these signs have identical denotation classes, it follows that there is no denotatum denoted by an utterance of sign x that cannot also be denoted by an utterance of sign y, and *vice versa*.

Let us now assume also, that, contrary to the requirement in the theorem above, the classes of utterances $\{a\}$ and $\{b\}$ do not have identical distribution, and that there is at least one grammatical context G in which only members of $\{b\}$ occur with the exclusion of

members of $\{a\}$ – that is to say, the grammatical context in question excludes $\{a\}$. Now on the assumption that $\{a\}$ (as a class) constitutes a sign x and $\{b\}$ (as a class) constitutes a sign y, it is the case that the grammatical context in question excludes the sign x.

However, the whole of the grammatical context G, together with the sign y constitutes a (complex) sign C. The sign y occurs, and has a specific denotational function within sign C. This denotational function is one that the sign x, being excluded from occurring in sign C, cannot fulfil. There is, then, a difference of denotational function between x and y – that is to say, there are certain types of denotata (namely those involved in situations denoted by utterances of the sign C) which utterances of sign y can denote, but utterances of sign x cannot. It follows then that sign x and sign y, contrary to what was *given* in the first place, cannot have identical denotation classes.

The absurdity engendered here is a direct consequence of introducing a statement which contradicts the requirement made in the present theorem. That is to say, unless that requirement is upheld – unless the requirement of identical distribution in grammatical contexts is imposed on "tentative synonyms" – an absurdity ensues in the theory. Therefore, the requirement in question is demonstrated to be theorematic (a valid and necessary inference) in the present theory.

Illustration

Although "is" and "are" appear to have the same denotation ("to be"), they cannot be set up as separate synonymous signs, since they do not have identical distribution in grammatical contexts. For instance, "is" cannot occur in the grammatical context "You . . . here" (in Standard English), whereas "are" does occur in such a context. The result is that, by inference from potential occurrences of "is" and "are" in complex signs, it becomes necessary to conclude that utterances of "is" cannot denote, for instance, *the presence of the person addressed*, but utterances of "are" can denote this. In this way the lack of distributional isomorphism between "is" and "are" (treated initially as tentative synonyms) is shown to imply a lack of denotational equivalence betwen them. Because of the present theorem it is not necessary to go into demonstrating denotational non-equivalence between "is" and "are", but is sufficient to point to their non-identical distribution (a relatively simple matter to establish) as a factor *implying* denotational non-equivalence. It follows, in practi-

cal terms, that "is" and "are" cannot be set up as separate *synonymous* signs. Whether they should be set up as two signs (with different denotations) or assigned (as respective subclasses) to one and the same sign, is not decided here, but is largely a matter of the relative adequacy of these alternative solutions.†

The present theorem is the appropriate one for testing a hypothesis that "chap" and "bloke" are separate synonymous signs in English. In the absence of any *grammatical* context that could demonstrate a difference of distribution between these signs, the hypothesis is not refuted and is allowed to stand.

Denotational Theorems

These theorems are called "denotational" theorems because in them use is made of the terms "denotation", "denotation class" and "class of denotata".

(I) Denotational Theorem I (D.T. I)

Two or more signs with identical denotation classes cannot have member-utterances that belong to the same form class.

Explanation

In a linguistic description it is not permitted to set up two or more synonyms (signs with identical denotation classes) unless it is the case that no utterance assignable to any one of the synonyms has the same phonological form as an utterance assignable to any of the other synonyms. By requirement, synonyms do not intersect, respectively, with one and the same form class.

By tautology a sign is a "class of mutually equivalent utterances". Any given utterance A, if it is a member of a sign x, is "equivalent" to all other members of the sign x. If A were to be a member of *another* sign y, as well as being a member of sign x, then A would be "equivalent" also to all members of sign y. Consequently, since "equivalence" is a transitive relation, all members of sign x would be equivalent to all members of sign y.

A is "equivalent" to (belongs to the same sign as) all members of sign x;

† It should be noted that since allomorphs are subclasses of a sign, their corresponding classes of denotata may be subclasses of the denotation class of that sign. As a matter of fact, under the present theory, *iz*, *am* and *ar* are allomorphs of the sign "to be".

A is "equivalent" to (belongs to the same sign as) all members of sign y;

$\therefore$ all members of sign x are "equivalent" to (belong to the same sign as) all members of sign y.

This means effectively that sign x and sign y which, as it was given, are two different signs, constitute a single class of mutually "equivalent" utterances, that is to say, they are in fact one sign. It is clearly absurd for two signs which are given as different signs to constitute a single sign. Therefore it is necessary to conclude that, since this absurdity was engendered by permitting utterance A to be a member of both sign x and sign y, this latter step is invalid. That is to say, it is theorematic in the theory that any given utterance A cannot belong both to a sign x and to another sign y. In general, then, we may formulate the following valid (deduced) statement:

By the very definition of "sign" any given utterance is assignable to one and only one sign.

Let us now assume the contrary of D.T. I, namely that two or more signs having the same denotation *may* have member-utterances that belong to the same form class.

Let x and y be two signs having the same denotation. Let A be a member-utterance of sign x and B a member-utterance of sign y. Furthermore, let A and B belong to the same form class, as is permitted by the contrary of D.T. I.

This being the case, both A and B have the same phonological form /*p*/. If A is a member of sign x, then sign x may have members with the phonological form /*p*/. B has the same phonological form /*p*/ and is assignable to sign x, unless it has a denotatum that cannot be denoted by a member-utterance of sign x. Since, however, sign x and sign y have identical denotation classes, there cannot be any denotatum denoted by a member of sign y (and, therefore, not by B, since B is a member of sign y) that may not also be denoted by an utterance of sign x (and *vice versa*). Therefore, B cannot denote a denotatum that may not, in turn, be denoted by a member of the sign x, and so B is assignable to sign x.

B is, as was given, a member of sign y. It is also, by inference, assignable to the sign x. Accordingly, B is assignable to two different signs. This is in direct contradiction with the valid inference that *any given utterance is assignable to one and only one sign.*

As we see, introducing the contrary of the *demonstrandum* of D.T. I as a premiss, leads to an absurdity. The theorem is, therefore, demonstrated by *reductio ad absurdum.*

Illustration

In spite of the fact that, in German, *Mann* and *Manne* are not combinatory variants (viz. *dem guten Mann*, *dem guten Manne* are both equally acceptable) we cannot set up two denotationally equivalent signs "Mann" and "Manne" in German. This is because, by virtue of the fact that in some grammatical contexts (e.g. *der gute Mann*) the appropriate allomorphic variant of *Manne* is *Mann*, the sign "Manne" would have to be said to contain, as a class, utterances with the phonological form /man/. However, all utterances of the sign "Mann" would have this same phonological form. At the same time, the two signs "Mann" and "Manne" would have to be acknowledged as having identical denotation classes. This would conflict with D.T. I, which states that denotationally equivalent signs can not have utterances belonging to the same form class (in this case the form class "/man/"). Therefore, as it is not feasible to set up "Mann" and "Manne" as two signs with *different* denotations, the only remaining alternative is to set up a *single* sign "Mann", while noting that in certain contexts there is *free* variance between alternative allomorphs of this sign, namely, between the allomorphs *man* and *manə*.

(II) Denotational Theorem II (D.T. II)

Respective subclasses of one and the same form class do not belong to separate signs, unless the denotation classes of these signs to which they are assigned, are non-intersecting classes.

Explanation

In identity hypotheses we may not "divide" a form class into two (or more) subclasses, by assigning these subclasses to separate signs, if the resulting classes of equivalent utterances have denotation classes such that these denotation classes are not mutually exclusive, but intersect with one another.

From the definition of a sign as *a class of equivalent utterances* it is clear, as we saw in the proof of D.T. I, that "equivalence" holds between all the members and only the members of one sign. Consequently any utterance A belonging to a given sign x is "equivalent" to members of sign x only, that is to say belongs to the sign x

exclusively. In other words, *there is no utterance A that is assignable to more than one sign.*

Now let us make a statement negating the theorem, and say that: respective subclasses of one and the same form class *x* may belong to separate signs *a* and *b*, such that the denotation class *x* of the sign *a* intersects with that of the sign *b*.

At this point let us introduce an utterance *A*, such that it is a member of the form class *x*, and its corresponding denotatum belongs to the intersection of the denotation classes of the signs *a* and *b*.

In the case of such an utterance *A* we can say that: *the utterance A may be assigned to the sign a* because members of the form class *x* are assignable to the sign *a*, and because its denotatum is a member of the denotation class of the sign *a*.

About this very same utterance *A* it is also true to say that *the utterance A may be assigned to the sign b* because members of the form class *x* are assignable to the sign *b*, and because its denotatum is a member of the denotation class of the sign *b* (viz. it is *given* that the denotatum of *A* belongs to the *intersection* of the denotation class of sign *a* and that of sign *b*).

The logical conjunction of the underlined statements in the above two paragraphs is that *the utterance A may belong to both the sign a and to the sign b.* However, this conclusion is in contradiction to the statement, derived from the definition of sign, whereby it is asserted that *there is no utterance A that is assignable to more than one sign.* Therefore it is demonstrated that the negation of the theorem introduced above leads to an absurd conclusion. D.T. II is therefore considered to be proven.

(III) Denotational Theorem III (D.T. III)

Respective subclasses of a form class *x* do not belong to separate signs unless the denotation classes of the signs to which they are assigned are classes that do not have a *direct attribute* in common.

Explanation

This theorem, if proven, would make it inadmissible for us to "divide" a form class into more than one class of equivalent utterances (i.e. signs) in such a way that the resulting signs corresponded with denotation classes having a direct attribute in common, due to the direct proper inclusion of both these denotation classes in the denotation class of at least one other sign existing somewhere in the language in question.

In order to make the import of the theorem clearer, I must reiterate here the definition of *direct attribute.* A direct attribute is a property of a denotation class (and in fact of any class of denotata) accruing to that class as a result of the direct proper inclusion of the class in the denotation class of any other sign in the language in question.†

In the previous theorems we have already seen how the definition of a sign as a class of equivalent utterances leads to the statement that: *there is no utterance that is assignable to more than one sign.*

We can now introduce a negation of the theorem, with a view to deriving an absurd conclusion from it. We make this statement in the following form: Respective subclasses of a form class x, may belong to separate signs, if the denotation classes of the signs a and b to which they are assigned are classes having at least one direct attribute in common, the direct attribute $\langle z \rangle$.

Let us then take an utterance A such that it is a member of the form class x.

In the case of such an utterance A we can state that: *the utterance A may be assigned to the sign a* because members of the form class x are assignable to the sign a, and because its denotatum belongs to a class of denotata with the direct attribute $\langle z \rangle$, a condition which is also fulfilled by the denotation class of the sign a.

About the same utterance A it is also true that: *the utterance A may be assigned to the sign b*, because from our assumptions it is clear that members of the form class x may be assigned to the sign b, and that the denotatum of the utterance belongs to a denotation class with the direct attribute $\langle z \rangle$, a condition fulfilled by the denotation class of the sign b (as well as that of the sign a).

The conjuction of the two underlined statements in the two foregoing paragraphs constitutes a conclusion directly opposed to the statement that *there is no utterance A that is assignable to more than one sign*, by producing a statement that *the utterance A may be a member of both sign a and sign b.* These two statements are in direct contradiction with one another. The former is derived from a definition in the present theory, and is therefore indubitably valid in that theory, whereas the latter statement is derived from a negation of the theorem (D.T. III). Consequently the introduction of a negation of the theorem is seen to be in direct contradiction with a valid statement in the theory. If the negation of the theorem leads to an

†For *direct proper inclusion*, see Chapter V.

absurdity, as it does within the present theory, then we must conclude that the theorem itself is valid.

Let us take a brief illustration from English of the repercussions of the above two theorems. D.T. II is derived so that we cannot, in English, set up, say, two signs "dog 1" and "dog 2" in such a way that the form class {"/dog/"} is "divided" between the two signs, and the denotation class of "dog 1" is identical to that of "white and black dog" while the denotation class of "dog 2" is identical to "black and other non-white dog".† Since the class of *black dogs* is common to both the above denotation classes, they can be seen to intersect, and therefore the theorem will prevent the setting up of hypotheses affirming the separate identities of "dog 1" and "dog 2" in English. If we did not have such a theorem, it would be possible to divide up any form class into infinite numbers of subclasses assigning each to a separate sign. We should then end up with an infinite number of hypotheses in English, affirming the identities of "dog 1", "dog 2", "dog *n*", *ad infinitum*, setting up infinite numbers of homonyms where one sign should suffice for the description. Genuine cases of homonymy are of course permitted, where the homonyms are not set up so that there is intersection between their respective denotation classes.

D.T. III is also set up to safeguard us from upholding hypotheses setting up the identities of "false" homonyms. Were it not for the theorem, we could subdivide the form class {"/stalirn/"}, assigning its respective subclasses to the signs "stallion 1" (with a denotation class identical to that of "black adult male horse") and "stallion 2" (with a denotation class identical to "non-black adult male horse").‡ However, if we were to set up hypotheses asserting the identities of two such signs "stallion 1" and "stallion 2", we should come into conflict with D.T. III, because the denotation classes of these two signs could be shown to have at least one direct attribute in common, namely that of ⟨adult male horse⟩, an attribute accruing from the fact that the denotation class of "adult male horse" directly properly includes that of "stallion 1" and "stallion 2". It is just as well for the present theory, that the setting up of such "false" homonyms is prevented by it, for were this not the case, any form class could be infi-

† Of course, no self-respecting linguist would – for intuitive reasons – give serious consideration to this particular hypothesis. Nevertheless, providing *reasoned* grounds for *refuting* such hypotheses is important.

‡ While it is quite clear that this is a hypothesis that is so strongly counter-intuitive as to seem worthy of being rejected out of hand, it is, in a formal method, necessary to provide rational grounds for *refuting* it summarily.

nitely subdivided producing an infinite series of signs "stallion 1", "stallion 2" etc. . . . Genuine cases of homonymy are permitted by the theorem, but they can only be genuine, by definition, if the denotation classes of the homonyms have no direct attribute in common.

I have contemplated, and rejected, the possibility of setting up a fourth denotational theorem, whereby we should be able, under certain circumstances, to assign to one sign members of different form classes, having "similar" phonological form and identical classes of denotata, so called "free variants" as typified by the classes of utterances "/aiðr/" "/Riðr/".† I doubt however if a theorem allowing us to account for such free variants under one sign, could ever be deduced within the present theory, particularly in consideration of the vague and arbitrary nature of the term "'similar' phonological forms". There could be no precise criterion for this "similarity" in the present theory, or indeed in the linguistic theory taken as a basis for the present theory. If the similarity of /aiðr/ and /Riðr/ was considered as sufficient, why not the similarity between /sistr/ and /sis/ (short for sister). The difference here is only a matter of degree, and either we would have to draw an arbitrary line, at some arbitrary stage of similarity, a procedure highly unsatisfactory in a rigorous theory, or else we would find synonyms disappearing from descriptive applications of the theory. For after all there is *some* degree of similarity even between the phonological forms /felOu/ and /blOuk/ (viz. they have /lOu/ in common). Yet one would not wish to say that "fellow" and "bloke" are the same sign in English.

† Spoken variants of the written form "either".

VIII

Identity-hypotheses

There are two important ways – apart from the notion of "belonging to one sign" – in which utterances can be ordered into classes. One way is through the phonological form of the forms of utterances, whereby we can set up *form classes* with reference to one specified phonological form. The other way involves specifying (by some non-circular means) a particular class of denotata, by reference to which we can establish that class of utterances whose members all denote entities belonging to the class of denotata in question. By characterizing the class of denotata corresponding to any class of utterances – which can be done by stating the *direct* attributes of the class of denotata in question – we can attach a concrete label to that class of utterances. Thus, for instance, we can refer to the class of utterances whose corresponding class of denotata has the direct attributes ⟨adult male⟩, ⟨male horse⟩ and ⟨adult male equine⟩ – a class of utterances including some utterances of "horse", all utterances of "stallion" and of "adult male horse", and so forth. This way of specifying classes of utterances attaches a concrete label to the resulting classes, just as a concrete label is attached to a form class by specifying the phonological form common to all their members.

When identity-hypotheses are stated in a description, they are made in terms of those utterances, or classes of utterances, which are presumed to belong to the signs whose identity is being hypothesized. Unless we attach to the class or classes of utterances which according to the hypothesis belong to one sign concrete labels by which the members of the sign can be identified, the statement of sign identity will be vague or even vacuous. Consequently, sign identity is stated in terms of form classes and of classes of utterances to which correspond specific classes of denotata.

In the event that a given language contains no homonyms of the sign *x*, and, also, the sign *x* contains only the members of one particular form class *a* (where */a/* is a particular phonological form), the hypothesis stating the identity of sign *x* need only do so in terms

of the given form class *a*. A hypothesis of this kind will be the simplest form of identity-hypothesis:

> All members of the form class *a*, and no other utterances, constitute the sign *x*.†

If, however, the sign *x*, although it does not contain members of more than one form class *a*, does not include all members of that form class, then the identity-hypothesis concerning sign *x* must take a different form:

> Some members of form class *a*, such that each of them belongs to a class of utterances with the corresponding class of denotata *Y*, and no other utterances, constitute the sign *x*.‡

Further, if the sign *x* contains members of two form classes, and properly includes each of these form classes, say *a* and *b* (each of which belongs to only the sign *x* and to no other sign), then the hypothesis asserting the identity of the sign *x* will state that:

> All members of form class *a* and all members of form class *b*, and no other utterances, constitute the sign *x*.

The examples above are just a few of the many possible hypotheses. For, although in practice it would be an advantage to limit the number of form classes dealt with at a time to a maximum of two, in the final hypotheses any number of form classes (or subclasses of form classes) could appear. Thus, in principle, the set of possible types of hypothesis is an open set, even though in practice we only deal with a maximum of two form classes or subclasses of form classes at a time. The types of possible hypothesis in practice remain a closed set and are presentable in a cartesian table:

	some ("/y/")	all ("/y/")	no ("/y/")
some ("/x/")	TYPE I	TYPE II	TYPE III
all ("/x/")	TYPE II	TYPE IV	TYPE V
no ("/x/")	TYPE III	TYPE V	∅

† In this case the label *members of form class a* gives an unambiguous characterization of the utterances belonging to sign *x*.

‡ In this case there is only a subclass of form class *a* belonging to sign *x*. The label *member of a subclass of form class a* is not sufficient for giving an unambiguous characterization to these utterances. The difficulty is resolved by specifying *that* subclass of the form class *a* to which corresponds a particular class of denotata *Y*.

This table represents some of the identity-hypotheses that are possible in principle, and all that we should wish to make in practice, for in the case of more complex hypotheses containing a number of different form classes or subclasses of form classes (say, all of {"/x/"}, some of {"/y/"} all/some of {"/z/"} etc.), in practice we should proceed by taking the form classes and subclasses in all the possible combinations of pairs, i.e. {"/x/"} with {"/y/"}, {"/x/"} with {"/z/"} and {"/y/"} with {"/z/"} etc. Having made a hypothesis about each of the pairs in one of the logically possible ways shown in the table, we would then "conflate" these hypotheses into a full identity-hypothesis (eliminating of course the purely negative ones in the form: no {"/x/"} *and* no {"/y/"}, since these could be replaced by the statement: *and no other form class*, when the final hypothesis was made). The conflation of hypotheses is logically permissible since the four statements

form class *a* and *b* belong to sign *x*
form class *a* and *c* belong to sign *x*
form class *b* and *c* belong to sign *x*
no other form classes *d* and *e* etc. belong to sign *x*

are, when taken in conjunction, tautologous with the single statement (final hypothesis):

form classes *a*, *b* and *c*, and no other form class, constitute the sign *x*.

It must be remembered that in principle as well as in practice, hypotheses remain hypotheses, as is indeed desirable. Consequently, in the description of a language by the aid of identity hypotheses, the "discovery" of a single utterance refuting a given hypothesis, will be sufficient to invalidate that hypothesis. If the hypothesis makes a statement that *all* members of a given form class belong to a sign *x*, for instance, the "discovery" in the synchronic data to be described of a single utterance belonging to the given form class and not belonging to the sign *x* as characterized by its semantic features, would invalidate the entire hypothesis. So would the "discovery" of an utterance, member of the form class {"/y/"}, which could be shown to belong to the sign *x*, if the hypothesis stated that no members of {"/y/"} could belong to that sign *x*.

This flexibility should not be confused with a lack of rigour in the

theory; it is a property of hypotheses that they should be refutable by confrontation with the data.

In Part II there are extensive examples of identity-hypotheses made in an application of the theory to Chinese. Each of these hypotheses is, of course, one that remains refutable if confronted with data of which the present writer had no cognizance. If such a refutation is made, this will have repercussions on the description of Chinese, but not on the theory itself, for the refutation of a hypothesis would merely indicate that that hypothesis needed to be replaced by a better one, in the light of additional data. For making reliable hypotheses in a language-description, a thorough knowledge of the speech data is necessary, and even then, the possibility of refutation by citing relevant counter examples must be kept open. A statement about phenomena that is immunized from falsification in terms of those phenomena cannot be said to reflect the properties of the phenomena.

IX

Homomorphy and Homonymy

Homonymy has already been mentioned in the chapter on sign-identity, where it was pointed out that D.T. II and D.T. III have important repercussions on the setting up of homonyms in linguistic descriptions. It remains to the present chapter to make this notion a precise one, defined within the terms of the semantic theory, and an integral part of that theory.

Roughly speaking, homonymy holds between signs whose respective utterances are phonologically identical; what in intuitive terms would be expressed by saying that: "the signs have the same sound". That the present theory accommodates the notion homonymy is clear from the implication of F.T. II that in any given language there may be a form class a, such that its members belong to more than one sign. The theorem effectively permits the assignation of respective members of a form class a, each of them an utterance having the phonological form /a/, to two or more signs, say the signs x and y. In such a case both utterances of sign x and utterances of sign y will have the form /a/ (the "same sound") and sign x and sign y will be *homonyms*.

In order to deal systematically with homonymy (note that there are various types of homonymy, as it will emerge later) I shall introduce the notion of *morph*. This notion, redefined for the purposes of the present theory, and conceived of in that theory as a *class of utterances*, is nevertheless well in keeping with the notion *morph* as it appears in Mulder's theory.†

A morph is a class of utterances constituted by the intersection of a sign (class of equivalent utterances) and a given form class.

Provided that the requirements of the theorems of sign-identity are satisfied, the present theory permits identity-hypotheses assigning utterances belonging to more than one form class to one and the

† See Mulder, *Sets and relations in phonology*, Oxford, 1968; Mulder, "On the art of definition, the double articulation of language, and some of the consequences", *Forum for Modern Language Studies*, V, no. 2, April 1969; also Mulder and Hervey, *Theory of the linguistic sign*, Janua Linguarum Series Minor, Mouton, The Hague, 1972.

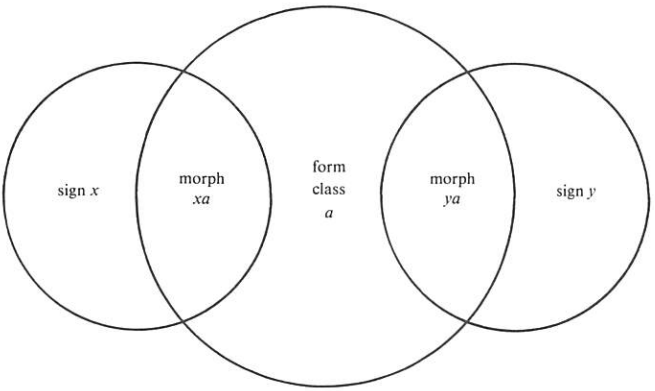
same sign. That is to say, one and the same sign may *intersect* with more than one form class. This in turn is the same as saying that, in the terms of the present theory, *a sign may have several morphs.*

For the purposes of convenience in the presentation of this chapter, I shall distinguish between *unique morphs* and *allomorphs.* In the case of a sign which intersects with only one form class, that sign has only one morph (co-extensive with the whole class of equivalent utterances, i.e. sign). Such a morph, whose members constitute the whole of a sign, I shall call a *unique morph.*

Wherever a given sign contains members of more than one form class (intersects, that is to say, with more than one form class), that sign has, of course, more than one morph. Morphs (provided there are more than one) belonging to one sign are *allomorphs* of one another.

All the members of a given morph are utterances having one and the same phonological form, as the definition of morph itself tautologically implies. On the other hand, the members of one form class, since they may belong to more than one sign (cf. F.T. II), may, of course belong to more than one morph. Consequently the members of two distinct morphs may be utterances whose forms have one and the same phonological form.

Morphs whose members (utterances) belong to one and the same form class are termed *homomorphs.* Homomorphy is the result of the intersection of two or more signs with one and the same form class.



Having arrived at a definition of homomorphy, the notion of homonymy can be unfolded in terms of homomorphy.

Homonymy, as a general notion, I shall here define as a relation between two or more signs with respect to the homomorphy of at least one morph belonging to each of the signs. Thus for instance the sign *x* and the sign *y* in the above diagram are homonyms (N.B. regardless of whether they contain utterances which do not belong to form class *a*) with respect to the homomorphy of the morphs *xa* and *ya*.

Homonymy may be *total* or *partial*,† depending on whether all the morphs of sign *x* have their corresponding homomorphs among the morphs of sign *y*, or whether some of the morphs of sign *x* are not homomorphs of any of the morphs of sign *y*, or *vice versa*.

Sign *x* and sign *y* are *total homonyms*, with respect to all their morphs (the latter clause may be omitted as it is a tautology), if and only if neither sign has a morph which is not a homomorph of a morph belonging to the other sign.

It will become apparent that under the present definition total homonymy will account for two intuitively very different situations:

(1) homonymy of sign *x* and sign *y* with respect to the homomorphy of the unique morph constituting sign *x* with the unique morph constituting the sign *y*;
(2) homonymy with respect to the homomorphy of each allomorph of sign *x* with one allomorph of sign *y* and *vice versa*.

That total homonymy must logically apply to both the situations is clear from the fact that homomorphy of each morph of sign *x* with a morph of sign *y*, and *vice versa*, applies equally well if both sign *x* and sign *y* have only unique morphs.

On the other hand, there is also good reason for saying that the two situations are different, for total homonymy with respect to the homomorphy of unique morphs, implies that the utterances of the homonymous signs *all* have one and the same phonological form corresponding to their forms. Such an implication is not valid in the case of total homonymy with respect to the homomorphy of each allomorph of sign *x* with an allomorph of the sign *y*, and *vice versa*, for utterances belonging to different allomorphs have forms with different phonological form.

A case of total homonymy with respect to the homomorphy of unique morphs can be instanced as a relation between the signs *x* and *y*, such that their respective identity-hypotheses are as follows:

† Mulder only calls "total homonymy" *homonymy*.

A subclass of the form class *a*, and no other utterances, constitutes the sign *x*.
A subclass of the form class *a*, and no other utterances, constitutes the sign *y*.

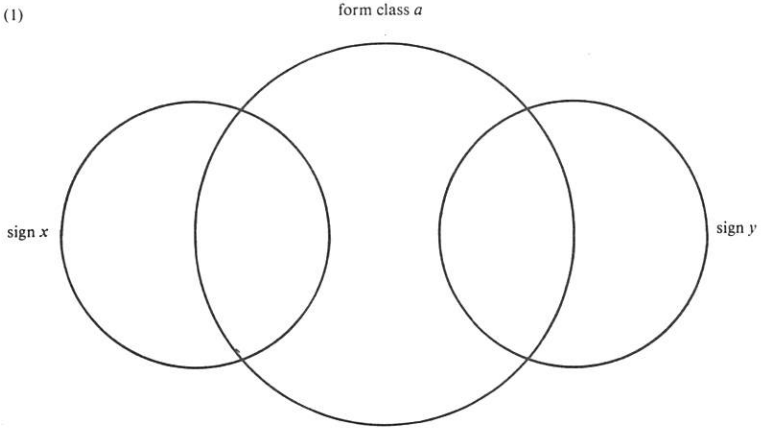
In this case both the signs *x* and *y* have unique morphs and both the morphs belong to the form class *a* (are homomorphs of one another).

An example of such a case of total homonymy is the relation between the signs "hare" and "hair", each of which contains only a unique morph, these morphs being homomorphs of one another since they are the result of the intersection of two signs with one and only one form class {"/her/"}. This is the most normal and commonly noted type of homonymy demonstrated by a very commonly used English example.

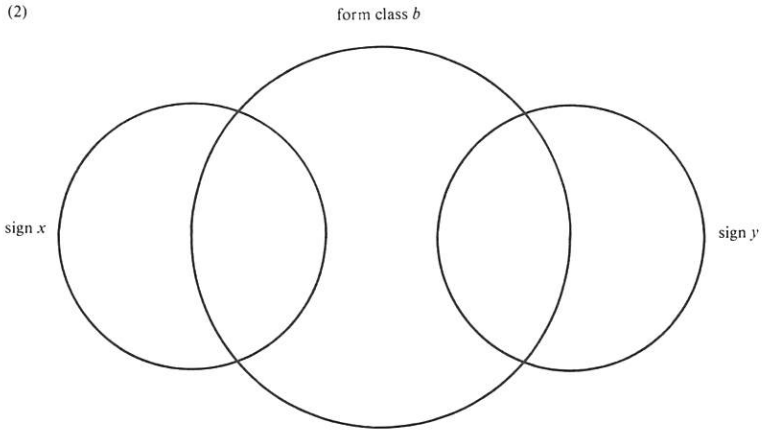
An example of total homonymy with respect to the homomorphy of each allomorph of a given sign with one of the allomorphs of another sign, and vice versa, can be given in the following identity-hypotheses:

A subclass of the form class *a*, a subclass of the form class *b*, and a subclass of the form class *c*, and no other utterances, together constitute the sign *x*.
A subclass of the form class *a*, a subclass of the form class *b*, and a subclass of the form class *c*, and no other utterances together constitute the sign *y*.

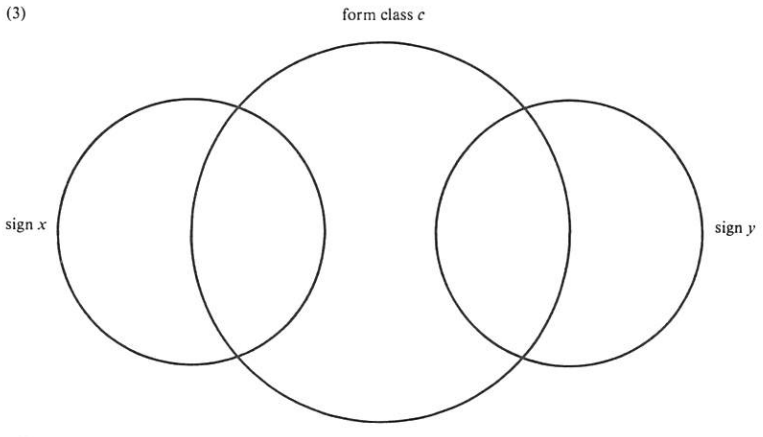
(1)



(2)



(3)



The total homonymy of such a sign x and such a sign y could be represented in three diagrams showing the homomorphy of each of the allomorphs of the one sign with one of the allomorphs of the other.

Total homonymy implies that any utterance of sign x has the same phonological form as at least one utterance of sign y, and that any utterance of sign y has the same phonological form as at least one utterance of sign x. The present treatment of homonyms precludes the statement that "one *form* can be related to two or more *references*", or even that "one *class of equivalent forms* can be related to

several distinct *classes of equivalent references*". These statements are clearly absurd in the present theory because there is a one-one relation of mutual implication between a single form and a single reference (which together constitute an utterance), and between any given class of equivalent forms and a single class of equivalent references (whose conjunction constitutes a sign):

(1) form ↔ reference
(2) class of equivalent forms ↔ class of equivalent references.

It is the distinction made earlier between *form* and phonological form of the *form*, which makes it possible to deal with homonymy without incurring either of the above absurdities.† Setting up classes of equivalent forms implies and is implied by setting up classes of equivalent utterances, that is to say with establishing sign-identity. If we continue to regard *form* and phonological form as one and the same thing, the circularity involved in this mutual implication remains vicious. On the other hand, by setting *form* aside as the model for the "expression" side of an utterance (and, of course, *reference* as a model for the "content" side of an utterance), in such a way that phonological form can be treated as a *property* of *form* (but not identical with *form*), we can then set up, without circularity, form classes of utterances on the basis of the phonological properties of the forms of utterances.

It should be noted that the Denotational Theorems, in particular D.T. II and D.T. III (cf. pp. 69 and 70), have a direct bearing on solving cases of homonymy, their purpose being to prevent the positing of unlimited numbers of "false" homonyms in a linguistic description. The need for the conditions laid down in these theorems can be indicated by the following examples in English.

At one end of the scale, we have the possibility of setting up, by hypothesis, two homonymous signs "hair" and "hare" – an intuitively desirable solution, I have no doubt.

Towards the other end of the scale, however, we have the possibility of setting up, again by hypothesis, *n* number of different homonymous signs "dog 1" . . . "dog n" – one for each significantly different breed, for instance; a possibility conceived on the basis that if *hairs* and *hares* are intrinsically different types of object, so are,

† This distinction is not the same as Mulder's distinction between "expression" and "phonological form of the expression", but it is set up for almost exactly the same reasons, and has similar implications.

say, *Great Danes* and *Dachshunds*. Such a solution, though conceivable, is probably intuitively undesirable.

One reason why such a solution might seem undesirable is because the possibility of homonymy between an indeterminate number of signs "dog 1" . . . "dog n" (one for each breed of dog) is very near to the extreme end of the scale where we have, in fact, the possibility of establishing an open set of as many homonymous signs "dog 1" . . . "dog n" as there are utterances "/dog/". The basis for conceiving of such a possibility lies in the fact that, although the "form"of such utterances is "constant", each utterance "/dog/" is intrinsically different in "meaning" (situational implications) from every other utterance "/dog/". In considering this extreme of discrimination between "homonyms", we can say not only that it is intuitively undesirable, but that it is totally inimical to the aims of *any* form of systematic linguistic description. It results in an infinite atomisation whereby "tokens" completely replace "types".

Thus we can say, categorically, that while at the one end of the scale we have what are, hopefully, *bona fide* homonyms, at the other extreme of the scale there are possibilities of homonymy which – even regardless of what linguistic theory is employed – must be eliminated from linguistic descriptions, if these descriptions are to use finite means ("types") to account for infinite manifestations ("tokens").

In between the two extremes – the cases where homonymy seems intuitively desirable, and the cases where it implies a wholly undesirable atomisation – there are all the various possibilities of establishing homonyms concerning which intuition has little (or, alternatively, too much) to say. There is, for instance, the possibility that one should, by hypothesis, set up:

two homonymous signs "affair" (proceedings) and "affair" (love)
two homonymous signs "bait" (trap) and "bait" (encouragement) and
two homonymous signs "to fire" (make burn) and "to fire" (shoot)

Such possibilities may be more or less intuitively desirable or undesirable – who is to say? What is certain, however, is that decisions will have to be made in a linguistic description as to whether these possibilities are accepted or rejected as solutions, and that intuitions cannot take the place of an explicit theory in coming to these decisions. To put it quite bluntly: a so-called "cut-off-point" is neces-

sary somewhere along the scale between *bona fide* homonymy and potential cases of homonymy that are unacceptable. Furthermore, this "cut-off-point" must be both *precise* and *justified*† in a linguistic description.

Outside of a particular theory, decisions, no matter how necessary in descriptions, cannot be either precise or justified. Thus, precision and justification in descriptions are neither "absolute" nor "theory-neutral" issues – rather, solutions can only be made precise and justified by means of a theory. However, this is not sufficient if the theoretical basis for precise and justified descriptive decisions is not a logical consequence of the theory itself. It is for this reason that in axiomatic semantics the theoretical basis for a justified and precise "cut-off-point" between *bona fide* homonyms and "false" homonyms is, itself, not arbitrary, but theorematic with respect to Axiomatic Functionalist theory. This is the import and the *raison d'être* of the *theorems* D.T. II and D.T. III.

In terms of these theorems, there is nothing to hinder the decision to treat, by hypothesis, "hair" and "hare" as homonyms. On the other hand, if, *instead* of one sign "dog", a separate homonym were to be set up for, say, each breed of dog (e.g. "dog 1" (Great Dane), "dog 2" (Dachshund), etc.), this would make *canine* a semantic feature in common to all the putative homonyms.‡ As a result, by application of D.T. III, the decision to set up these putative homonyms would be rejected.

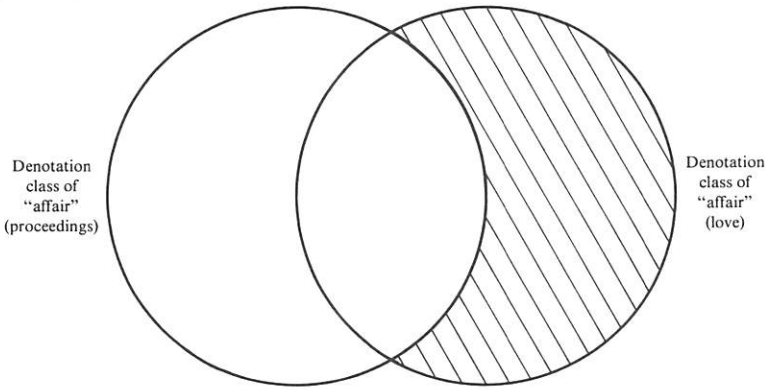
As for the other examples cited as intuitively undecidable, application of the theorems would provide a justified (non-arbitrary with regard to the theory employed) solution for these cases. The possibility of treating "affair" (proceedings) and "affair" (love),§ as homonyms, would be decided against, by application of D.T. II, on finding that the relationship between the denotation classes of the putative homonyms is one of overlap as shown below.

The possibility of treating "bait" (lure) and "bait" (encouragement) as homonyms would be rejected as a solution, by application of

† Cf. J. W. F. Mulder, "Linguistic theory, linguistic descriptions and the speech-phenomena", *La Linguistique*, 11, 1, 1975.

‡ In the absence (implied by setting up several homonyms in its place) of a single sign "dog", the sign "canine" would be not merely a hyperonym, but a *direct* hyperonym of "dog 1" (Great Dane), "dog 2" (Dachshund), etc.

§ In fact all "love affairs" are "affairs" (proceedings) in the wider sense. The type of "affair"meant is indeterminate unless made determinate by, for instance, such contexts as "He had an affair with his secretary".



D.T. III, on finding that both putative homonyms† can be assigned the same semantic feature *incentive*.

The possibility of treating "to fire" (make burn) and "to fire" (shoot) is, on the other hand, *not* to be rejected – neither D.T. II nor D.T. III would hinder this decision.

D.T. II can, by tautology, be rephrased as a requirement that *homonymous signs must never have overlapping denotation classes.* It is this stipulation that would prevent us from setting up two homonyms "affair" (proceedings) and "affair" (love).

D.T. III can be tautologously rephrased as a requirement that *homonymous signs must never have a semantic feature in common* (signs x and y have a semantic feature in common $\leftrightarrow$ the denotation classes of signs x and y have a direct attribute in common). The setting up, instead of one sign "dog", with the features *canine*, *domestic mammal* (these features are tentative), of two (or more) homonyms "dog 1", "dog 2", even if permitted by D.T. II alone, is prevented by D.T. III, because no matter how we set up subclasses of the form class {"/dog/"}, the respective classes of denotata corresponding to these subclasses, even if they do not intersect, will nevertheless still have the direct attribute ⟨canine⟩ in common.‡

Thus, apart from the definition of homonymy given with reference

† There is indeterminacy between "bait used in trying to trap something or someone" and "bait used for encouraging someone or something". The intentions for which "bait" is used can be made determinate by such contexts as "He uses worms as bait to catch fish", or "He was offered a scholarship as bait to attract him to the College".

‡ On the assumption that the data of English bear this out.

to homomorphy, we can, with reference to the Denotational Theorems, state two relations which characterize homonyms.

(i) Homonymous signs have denotation classes which do not intersect with one another;
(ii) Homonymous signs never have a semantic feature in common.

The approach to sign-identity put forward in the present theory is likely to increase the number of recognized homonyms in the description of languages, by permitting homonymous but distinct signs to be set up, according to D.T. II and D.T. III, instead of accounting for historically or metaphorically related senses under one and the same sign. Having a theoretically based method for dealing with sign-identity will remove the role of intuition to the stage of making tentative hypotheses, where it belongs. If final hypotheses seem to clash with intuitive judgements, provided that the theory was applied consistently, one can but conclude that those intuitions were based on some misconception, or preconceived bias. Intuition has no place in a linguistic description – only in the *act* of making a description may it play a part, and even there, an informal one.

Intuitively related "meanings", where the relation is derivational or metaphorical, have to be ignored in the semantic description. Thus for instance, regardless of any intuitive connection between "caterpillar" (animate) and "caterpillar" (tractor), they will be described in a semantic description as two distinct, homonymous signs. It will of course still be open to one to account in some other field of description for the intuitive connection. The ignoring of historical (derivational) relations between homonyms is certainly consonant with the logic of synchronic linguistics, for matters of historical derivation must not be taken into consideration in a synchronic model. Indeed, as Bloomfield says: "In order to describe a language one needs no historical knowledge whatever; in fact, the observer who allows such knowledge to affect his description, is bound to distort his data."†

Factors of "meaning" arising from a speaker's etymological knowledge, or from the "artistic" use of novel coinage of metaphors, may not be cited in the present semantic theory. These are neither "denotational", nor synchronically conventional aspects of "meaning", and do not fall under denotational sign-semantics. The presence of such "non-denotational" meaning-relations will not be taken to imply semantic identity – let alone sign-identity – of the terms

† L. Bloomfield, *Language*, London, 1935, p. 19.

between which these relations hold.

Instead, the introduction of rigorous criteria for sign-identity will lead, for instance, to distinguishing in English between a number of homonyms in place of a single dictionary entry with several senses, in the case, say, of "sweet". Setting aside the sign "suite" as in "bedroom suite", which even in the normal dictionary is acknowledged as a homonym, a description based on the present theory would set up at least the following three homonyms:

(1) "sweet 1" consisting of that subclass of the form class {"/suṛit/"} whose class of denotata has the direct attribute ⟨having a particular taste⟩;
(2) "sweet 2" consisting of that subclass of the form class {"/suṛit/"} whose class of denotata has the direct attribute ⟨pleasant⟩;†
(3) "sweet 3" consisting of that subclass of the form class {"/suṛit/"} whose class of denotata has the direct attribute ⟨course (in a meal)⟩.‡

The above three signs, and possibly more, which can be set up to replace the dictionary word "sweet", are total homonyms, satisfying the conditions set up in D.T. II and D.T. III. All three denotation classes are non-intersecting classes, that is to say, they have no member in common.§

Common attributes of the denotation classes of (1), (2) and (3) can doubtless be found (if nothing else, there is their attribute of being properly included in the universal denotation class of the sign "entity"). It would be presumptuous of me to say out of hand that no

† The signs "sweet 1" and "sweet 2" have non-intersecting denotation classes, for the *quality* of affecting the tastebuds in a certain way is, *qua* denotatum (entity in the "real" world), quite distinct from the *quality* of being pleasant – though one and the same *object* may possess both these qualities simultaneously, no utterance of "/suṛit/" may *denote* both these qualities simultaneously.

‡ The denotation class of (3) is properly included in the denotation class of "sweet-tasting things", but does not intersect with the denotation classes of (1) and (2). The denotation classes of (1) and (2) contain members wich are *qualities*, whereas the members of the denotation classes of (3) and of "sweet-tasting things" are *objects*. Objects and qualities of objects are distinguished from one another already on the level of denotables in the universe.

§ We must not be misled by the apparent counter-example of a conceivable sweet-course at a meal being both sweet-tasting and pleasing, an instance which must be very common in our experience of the real world. In this situation there are nevertheless three very distinct denotables, which in English, though not in other languages, happen to be denoted by utterances belonging to one and the same form class.

attribute could possibly be found such that it is a *direct* attribute of at least two of the denotation classes in question. All I can say is that I have not discovered such an attribute, and thus have been unable to show the homonyms in question to be "false" homonyms. By this diffidence in asserting that no common attribute exists, I in fact uphold the principle of refutability which must continue to apply to the hypotheses stating the separate identity of the signs "sweet 1", "sweet 2" and "sweet 3". Even after being included as final hypotheses in a description, hypotheses must remain in principle refutable (i.e. testable by further attempted refutations).

Although we can describe a language synchronically as though it were static, and likewise, in this description the "denotation" of a sign can be considered as a constant, there is an important sense in which the "denotation" of signs is fluid. Because of the possibility of changes in usage, that is in speech, it is of course possible for the denotative meaning of a sign to alter significantly in time. Whenever a sign x with a given denotation class A acquires a denotatum a such that in order for that denotation class to be able to accommodate the denotatum a, the attributes of the class A must be changed, it no longer makes any sense to talk about the denotation class A and the sign x. Intuitively, and imprecisely, we can say that any utterance "of the sign x" corresponding to a denotatum such as a, is a "metaphorical usage of the sign x". As a matter of fact, regarding such utterances as members of the sign x would lead to an absurdity. Instead, either a new sign y (with different features) must be set up *in the place* of the sign x; or a homonym of x, a new sign $x1$, must be *added* to the description. The choice between the two depends on the result of the application of D.T. II and D.T. III.

Metaphorical usage, a diachronic, "creative" phenomenon, is generally based on the recognition of some observable similarity between the denotata of a given sign and some other denotable(s). Thus, it may well be that the first utterance "/krein/" denoting the machine, was made on the basis of the recognition of some similarity between the long neck of a crane (bird) and the shape of the machine. If this is the case, we have a clue to the *motivation* behind the metaphorical coinage. This motivation is, however, an unpredictable factor, based on imaginative faculties by which observable similarities between denotables (we should not even say *denotata*, for, here, we are entirely in the realm of experiencing the real world), are seen suddenly in sharp relief. The motivation is too vague to pin

down, and is in any case, more the concern of the psychologist than of the linguist. Therefore, the present theory will not attempt to account for metaphor, except in so far as metaphorical usage effects the speech data, and consequently the identity-hypotheses made about the data. These hypotheses need to be revised if novel "metaphorical utterances" are to be accounted for in the description of a language.†

The inclusion of *homonymy* in the theory – it must be clearly understood – does not entail that descriptions of languages must universally contain homonyms. It is possible to conceive of a language, though this is unlikely to be instanced among natural languages, which contains no homonyms. It is possible, and even likely, that certain types of homonymy are not instanced in some language. For instance, I have been unable to find in English an example of *total homonymy* of the second subtype (i.e. total homonymy with regard to the homomorphy of each of the allomorphs of sign x with one of the allomorphs of sign y, and *vice versa*), and it is quite possible, though uninteresting from the theoretical point of view, that English contains no such instances of total homonymy.

The case of the sign "(plural)" and the sign "(genitive)" comes nearest to providing an English example of the kind of total homonymy discussed above. But on consideration it becomes clear that at least one of these signs possesses at least one allomorph which is not a homomorph of an allomorph of the other sign (viz. the allomorph *-en*, as in oxen, is an allomorph of the sign "(plural)" but the sign "(genitive)" contains no allomorph which is a homomorph of *-en*). The relation between these two signs turns out in fact to be *partial homonymy* with regard to multiple homomorphy of several of their respective allomorphs.

If two signs x and y are such that at least one morph of x is a homomorph of a morph of y, but at least one of the two signs contains a morph of which the other sign contains no homomorph, then at the level of signs we cannot talk of total homonymy between the signs x and y. In such a case we shall say that the signs x and y are partial homonyms with respect to the homomorphy of a morph (or morphs) of x with a morph (or morphs) of y.

Partial homonymy is a relation between signs such that at least

† Each synchronic description must limit itself to the fixed conventions operative at an arbitrary point in time, and cannot, perforce, describe (or "predict") changes in those conventions – such as those involved in metaphors.

one allomorph of one sign is a homomorph of a morph of the other and at least one other allomorph of the former sign is *not* a homomorph of any morph of the latter.

There may be partial homonymy between two signs x and y such that x contains a unique morph, whereas y contains at least two allomorphs, if the unique morph of x is a homomorph of one of the allomorphs of y. This situation can be represented in terms of the following identity-hypotheses stating the identity of two partial homonyms x and y:

A subclass of the form class a and no other utterances, constitutes the sign x.
A subclass of the form class a and a (subclass of) form class b etc. and no other utterances, constitute the sign y.

In this instance sign x and sign y are partial homonyms with respect to the homomorphy of the unique morph of x with an allomorph of y. The implications of such a situation are that all the utterances of sign x belong to the same form class (have forms with identical phonological form) as some of the utterances of the sign y.

An example in English of this type of partial homonymy is the case of the signs "bee" and "be".

The sign "bee" contains a unique morph, the intersection of that sign with the form class {"/bṚi/"}, whereas the sign "be" contains several allomorphs where it intersects with the form classes {"/bṚi/"}, {"/iz/"}, {"/am/"}, and {"/ar/"}. There is homomorphy between the unique morph of "bee" and an allomorph of the sign "be", and consequently partial homonymy between the two signs.

When partial homonymy is between a sign having a unique morph and another sign having at least two allomorphs, partial homonymy obtains perforce with respect to the homomorphy of one and only one morph of the one sign with one and only one morph of the other sign. Partial homonymy with respect to the homomorphy of one morph of a sign with one morph of another sign, must hold between two signs of which the one has a unique morph but the other not, and *may* hold between two signs each of which has at least two allomorphs. In the former case we may speak of *unilateral* partial homonymy, and in the other of *single* homonymy. It is evident from what has been said, that unilateral partial homonymy implies single partial homonymy, but not *vice versa*. Thus in the case of the English example cited above, the relation between the sign "be" and the sign

"bee", is one of unilateral partial homonymy ("bee" has a unique morph), which implies the relation of single partial homonymy (i.e. with respect to the homomorphy of one and only one morph of "be" and one and only one morph of "bee").

Partial homonymy may hold between two signs with respect to the homomorphy of several respective morphs of one sign with several respective morphs of the other sign. The implications of such a relation are that each of the signs has allomorphs, that at least two allomorphs of the one sign are homomorphs, respectively, of at least two allomorphs of the other sign, and that at least one of the signs contains at least one allomorph such that it is not a homomorph of any allomorph of the other sign. Such cases of *multiple partial homonymy* can be described in n-tuples depending on the number of pairs of homomorphs. A typical instance of twofold partial homonymy can be given in terms of the signs *x* and *y* whose respective identity hypotheses are as follows:

A subclass of the form class *a*, a subclass of the form class *b*, a form class *c* or a subclass of form class *c*, etc. and no other utterances, together constitute the sign *x*.

A subclass of the form class *a*, a subclass of the form class *b*, a form class or a subclass of *d*, etc. and no other utterances, together constitute the sign *y*.

In such a case as the example above, there is partial homonymy with respect both to the homomorphy of the morph *ax* with the morph *ay* and to the homomorphy of the morph *bx* with the morph *by*. (The morph *ax* is the class of utterances belonging to the intersection of the sign *x* and the form class *a*. The morphs *ay*, *bx* and *by* are to be interpreted analogously.)

The sign "(plural)" and the sign "(genitive)", in English, are a case of multiple partial homonyms, with respect, for instance, to the homomorphy of the morphs *z*, *s* and *iz* of the "(plural)" with the morphs *z*, *s* and *iz* of the "(genitive)". However, there is at least the morph *en* belonging to the "(plural)" (e.g. "oxen"), which has no corresponding homomorph in the sign "(genitive)". Furthermore, the form class {"/∅/"} intersects with the sign "(plural)" but not with the sign "(genitive)". Consequently, the homonymy between the two signs is multiple partial homonymy.

As I have said earlier in the present chapter, the theory outlined here deals with the types of homonymy-relations possible (in a

logical sense) between signs. It is in no way implied that each language must contain instances of each of the types of relation; languages may or may not do so. If they do contain instances, however, by using the theory we will be able to describe them.

The various types of homonymy can be presented in the following scheme:

HOMONYMY

(With respect to the homomorphy of at least one morph of sign *x* and at least one morph of sign *y*.)

TOTAL

(With respect to the homomorphy of all the morphs of sign *x* with respective morphs of the sign *y*

AND VICE VERSA.)

(1) With respect to the homomorphy of the unique morph of sign *x* and the unique morph of sign *y*.

(2) With respect to the homomorphy of all *allomorphs* of signs *x* with respective allomorphs of sign *y*

AND VICE VERSA.

PARTIAL

(With respect to the homomorphy of some, but not all, of the morphs of sign *x* with respective morphs of the sign *y*

OR VICE VERSA.)

(1) SINGLE (With respect to the homomorphy of one morph of sign *x* and one morph of sign *y*.)

(2) UNILATERAL (With respect to the homomorphy of a unique morph of sign *x* with an allomorph of sign *y*.)

(3) MULTIPLE
   (*a*) TWOFOLD (With respect to the homomorphy of two allomorphs of sign *x* with respective allomorphs of sign *y*.)
   (*b*) THREEFOLD (By analogy with TWOFOLD.)
   (*c*) FOURFOLD
   etc.

X

Synonymy

Synonymy, as an intuitive notion, is as common in linguistic theories, as it is controversial. On this intuitive level, it is interpreted as a relation between linguistic elements *having the same "meaning"*. Unless, of course, there is a very clear notion of "meaning" to serve as a basis of the definition, synonymy must perforce stay a vague and controversial notion. It has been held often that no language contains words that are *exact* synonyms of one another, and of course there is no guarantee that a given language will in fact contain instances of synonymous words. Furthermore, if the widest meaning of "meaning" is taken as a basis, it is quite probable that no two signs, let alone two words, will prove to have exactly the same "meaning". Some aspects of "meaning" may, however, be of a purely subjective nature, and not only might a given individual register different emotional responses to "near synonyms", it is also more than likely that no two speakers will agree even in their assessment of the "emotive meaning" of one and the same sign. Consequently, such aspects of meaning cannot be called *conventional*, and do not form a part of "meaning" in a linguistic theory which, by intention and by definition, is interested only in purely conventional "meaning".†

In the present theory, "meaning" is dealt with purely in terms of denotation. This is not to say that "meaning" is to be equated with denotation, and no implication is made as to the fact that there are no other kinds of "meaning". Indeed I firmly believe that denotation is only a subtype of "meaning" as a whole, but at the same time, I regard all kinds of "meaning" other than what I call *denotation*, *a priori* excluded from the present semantic theory by my own definition of the scope of that theory.

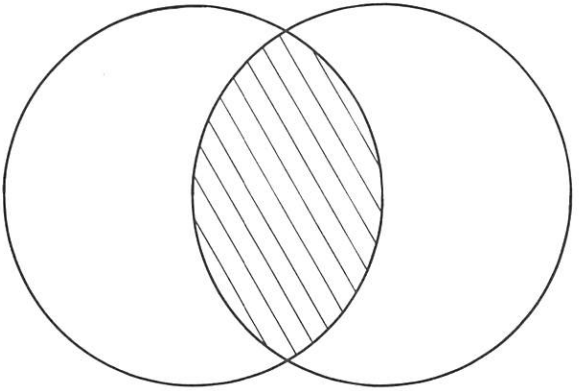
All relations based on "meaning" in this theory are based on denotational meaning, that is to say on the denotation classes of signs. Accordingly, synonymy in the present theory is a relation, between signs, of having the same denotational meaning; signs corresponding

† See J. W. F. Mulder and S. G. J. Hervey, "Index and signum", *Semiotica*, 1971, IV, 4.

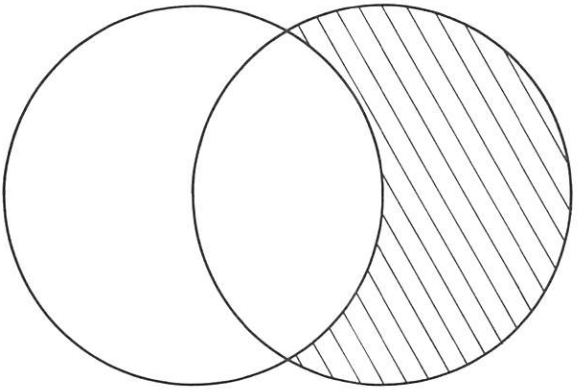
to identical denotation classes are, in the present theory, synonyms.†

That such a relation of synonymy may hold between signs, is implicit in the logical, set theoretical, relations possible between denotation classes, which are as follows:

(1) Disjunction



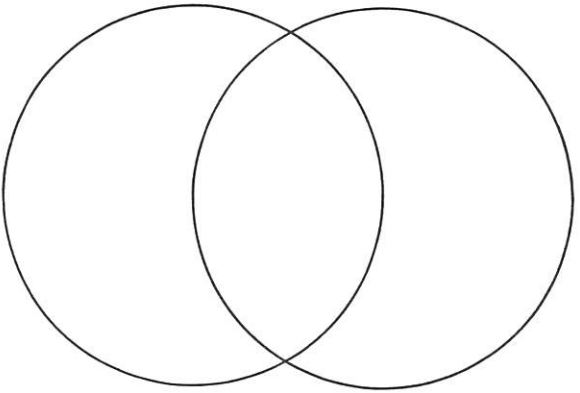
(2) Proper Inclusion



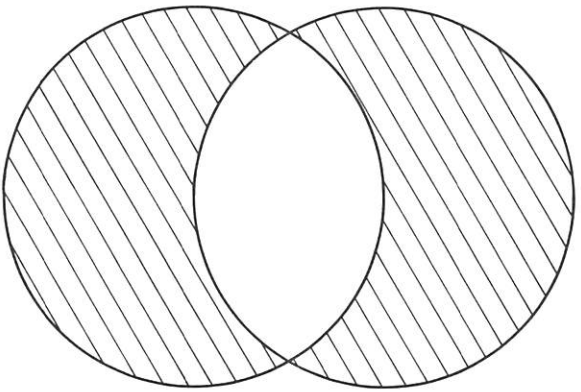
The fourth alternative, that of total overlap, or total inclusion between the denotation classes of two signs *x* and *y* tautologically implies that the denotation classes of sign *x* and sign *y* respectively, are

† I am not alone in defining synonymy in terms of "denotational identity". Similar views are expressed by, for instance, Ebeling who sees synonymy as a matter of identical applicability to reality: "A replacement of one form by the other in a given utterance does not change its applicability to reality . . .", C. L. Ebeling *Linguistic Units*, Mouton, 1960, p. 127.

(3) Intersection (Partial Overlap)



(4) Total Overlap (Identity)



identical classes comprising identical sets of members. The semantic identity of signs is, in the present theory, positively determined by the corresponding denotation classes of those signs. Therefore, signs whose denotation classes are identical (i.e. whose denotation classes overlap and include one another totally) have their semantic identities determined by identical factors, and are, therefore, *semantically identical*, or synonymous.

It must be noted that the identity of a sign must not be confused with the *semantic identity* of that sign. The semantic identity of a sign, as I have said, is determined by the denotation class corresponding to the sign, and is a matter of *denotational identity*. On the other hand the identity of a sign is

(*a*) negatively determined by the set of oppositions (paradigmatic) into which the sign enters (*distinctive function*),

(*b*) stated in terms of an identity-hypothesis tested through the application of the Theorems (Chapter VI) set up for this purpose.

Consequently, sign-identity implies semantic (denotational) identity, but not *vice versa*. *Synonyms are distinct* (*non-identical*), *but semantically* (*denotationally*) *identical signs*.

The ability of two utterances of two signs respectively to denote empirically identical denotata does not imply that the two signs are synonymous, but merely that their denotation classes have at least one member in common. This condition applies not only when there is total overlap between the denotation classes, but also when they intersect partially, or when one denotation class properly includes the other. It is impossible to arrive at the notion of synonymy *via* the notion of referentially similar utterances (i.e. utterances corresponding to empirically identical denotata for classes of referentially similar utterances will include utterances belonging to signs of which one is, for instance, a hyperonym of the other, as well as of signs which are synonymous.

If we take a given constant denotatum *horse* the physical identity of which is taken to be constant, the class of referentially similar utterances, i.e. utterances which all have that same given *horse* as their denotatum, may contain utterances not only of the sign "horse", "mammal", "animal", etc., but also of "stallion", "male horse", "adult horse", "adult male horse", etc., as well as "chestnut", "thoroughbred", etc. Of this inventory of signs only the signs "adult male horse" and "stallion" are synonyms of one another, although each of the signs contains utterances which belong to the class of referentially similar utterances determined by taking the denotatum *horse* as a given constant. It is indeed one of the features of the economy and potential for manipulation of natural languages that utterances of many different signs, with "wider" or "narrower" denotation classes may be used to denote one and the same denotatum.†

In the present theory, synonyms have identical sets of semantic features. This is both intuitively satisfactory, and logically consistent within the present view of synonymy.

† Cf. "quantitative economy" in Prieto. L. Prieto, *Messages et signaux*, Paris, 1966, pp. 118–152, also S. G. J. Hervey, "Notions in the manipulation of non-denotational meaning in speech", *La Linguistique*, 1971, 1.

Synonyms are, *a priori*, non-identical signs and thus we need not account for their non-identity once more on the level of semantics, but can concentrate on what they have in common. Furthermore, intuitively speaking, synonymous signs have (at least in some sense) the same "meaning", and therefore it seems reasonable to expect the statement of semantic features to account for this "sameness of meaning".

As for logical consistency, each one of a set of synonymous signs partakes in the same set of semantic relations to other signs, that is to say all have the same sets of hyperonyms, and of hyponyms, because identical denotation classes properly include, are properly included by, and intersect partially with the same sets of denotation classes corresponding to other signs. The semantic features of a sign x are derived *via* the *direct proper inclusion* of the denotation class of the sign x in the denotation classes of other signs in the same language. Consequently if the sign y has a denotation class which is exactly identical with that of the sign x, then the denotation classes of the very same signs as directly properly include the denotation class of sign x will also directly properly include the denotation class of sign y, so that the same features will be derived from these relations of direct proper inclusion for the sign y as for the sign x.

It would lead to a logical contradiction if we allowed two synonyms to have non-identical sets of features. If one feature of sign x is not a feature of the sign y, this implies that there is at least one sign in the language whose denotation class directly properly includes that of the sign x but not that of the sign y. This in turn implies that the denotation class of the sign x is not identical to that of the sign y, for identical classes have identical relations to *any* other given class. Therefore, the denotation classes of sign x and sign y being non-identical, the sign x and the sign y are by definition *semantically non-identical*, that is to say *non-synonymous*.

Identity of semantic features tautologically implies identity of corresponding denotation classes and so it is also true to say that if two denotation classes can be shown to differ in at least one member, then the two signs to which they correspond respectively are not synonymous, and must differ in at least one semantic feature.

As I have said earlier, there is no logical guarantee that in any given language instances of synonyms will be found.† Certainly, a

† That is to say, there is no sense in which "synonymy" can be called a "linguistic universal".

really economical semiotic system, particularly one whose sole purpose was the communication of denotational meaning "in black and white", without stylistic devices and without emotive overtones, would contain no synonyms, for synonyms would be redundant for the purposes of such a system.

Nevertheless, it is improbable that we should find a language totally devoid of synonyms. It must not be forgotten that in the present theory general statements of semantic relations are made on the level of the *sign* (including moneme, word and syntagm), and that it is nowhere implied that two synonyms must be of the same degree of grammatical complexity. That is to say, interpreting a statement such as "'bachelor' has no synonyms in English" in the sense that English contains no other *plereme* (word) synonymous with "bachelor", would be inept in the present theory. Such a statement should be taken to mean that there is no *sign* in English, whether a *plereme*, a *moneme* or a *syntagm*, synonymous with the sign "bachelor". This however is not the case, for the *syntagm* "unmarried man" is clearly synonymous with the sign "bachelor". Dictionary-type definitions of the denotational meaning of signs would, in the application of this theory, be made not in terms of synonyms, but in terms of semantic features. In terms of semantic features it is possible, by moving up the hierarchy until we reach a "universal hyperonym", to fix the position of the denotation class of the given sign in the whole system. By synonymous definition we merely rely on the fact that one of the synonyms may be familiar to the user of the dictionary. If this is not the case, for instance if "chap" is defined synonymously by "bloke", and neither word is familiar to the dictionary-user, the definition will be of no help to him.

In some cases the set of signs from which the features are derived can be formed in some way into a syntagm synonymous with the original sign. Such is the case for instance with the features of "ram" which are derived from its hyperonyms "male sheep", "adult sheep" and "adult male ovine". In this case it so happens that the three syntagms above can be conflated into one syntagm "adult male sheep" which is a synonym of "stallion". However, there is no logical reason why this type of conflation should always be possible, nor is there any consistent "recipe" for performing such conflation, and so, while statement of semantic identity is always in principle possible in terms of semantic features, it is not in principle always possible in terms of synonymy. Synonymous definitions (*a*) may imply circularity, (*b*) are

not always possible. These two facts offer some justification for preferring description by means of semantic features to synonymous definition.

Synonymy could be used as a foundation for examining aspects of non-denotational meaning,† since any difference of "meaning" between synonyms, which are denotationally identical signs, must, of course, be a difference of non-denotational "meaning". In science the isolation of phenomena is of prime importance, and, therefore, the ability to isolate non-denotational meaning could be of benefit to non-linguistic disciplines.

† This is in agreement with Ullmann's views on the importance of a study of synonymy. "The study of synonymy thus becomes an important borderline province between semantics, stylistics, and lexicography . . .", S. Ullmann, The *principles of semantics*, Glasgow, 1957, p. 113; also see S. G. J. Hervey, "Notions in the manipulation of non-denotational meaning in speech", *La Linguistique*, 1971, 1.

XI

Predicative Syntagm and Semantic Features

In the discussion on the notion "sign" (Chapter I) a distinction was drawn between three grammatically defined subtypes of sign operating on different constructional levels: *moneme*, *plereme* and *syntagm*. To recap briefly; monemes are signs in their capacity of being "atomic" elements in morphology, pleremes are signs in their capacity of being "molecular" elements in morphology, but "atomic" elements in syntax (i.e. simultaneous bundles of monemes, bundles between which, but not within which, syntactic relations may hold), and syntagms are signs in their capacity of being bundles of constituent signs in syntactic relations with one another.

This classification of signs into

(*a*) morphological components;
(*b*) morphological bundles serving as minimal syntactic components;
(*c*) syntactic bundles

is grammatically exhaustive, and does not permit us to give a special grammatical status to the traditional, and generally prominent, notion "sentence". What is normally called a "sentence" cannot, in my view, be set apart from the category of syntagm. That is to say, there is no *strictly grammatical* (constructional) property whereby we can distinguish, as intrinsically different, a syntagm of the type

the very commendable diligence shown by employees of the firm

(traditionally regarded as a "phrase") from a syntagm of the type

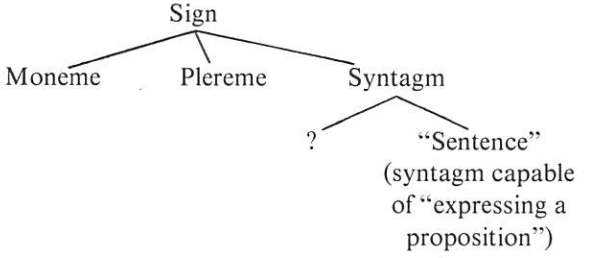
the employees of the firm showed a very considerable diligence.

Of course, as *subtypes of syntagm* these two may be differentiated, but the distinction between them cannot be elevated to giving the latter the status of a *fourth* grammatical type of sign, ranking as discrete from syntagm. To put it bluntly, Axiomatic Functionalist theory maintains that the traditional notion of "sentence" – as a rank *above* syntagm, but part of the same grammatical "hierarchy" (morpheme, word, phrase, clause, sentence) – is ill-conceived. If taken together

with an intonation (and other "parasyntactic" features),† an entity of the type traditionally and currently called "sentence" is not a mere grammatical construction, and therefore not a grammatical subtype of sign (i.e. not on a par with moneme, plereme and syntagm). If taken in isolation from intonation (and other "parasyntactic" features) an entity of the type usually referred to as "sentence" is no more than a particular subtype of syntagm (but not a type discrete from syntagm). Either way, the notion "sentence" has no separate place as a major grammatical type of sign.

Needless to say, we reject such purely intuitive ideas of "sentence" as "a sign that conveys a complete thought" (to cite just one of the popular views of "sentence") – for, if it makes sense to say that *any* sign can "convey a complete thought", then, in the same sense, *all* types of sign can "convey a complete thought".

In a slightly more sophisticated view, the criterion for "sentencehood" may be that a "sentence" is "a sign that expresses a proposition". This view, however, is also objectionable. In the first place, it is not clear either that *all* so-called "sentences" can be said to "express propositions" (e.g. *Get your hair cut*), or that *only* so-called



"sentences" can be said to "express propositions" (there is certainly a covert proposition "expressed" in the phrase: *the very commendable diligence shown by employees of the firm*).‡ Furthermore, the potential for "expressing a proposition" is, in any case, not a *gram-*

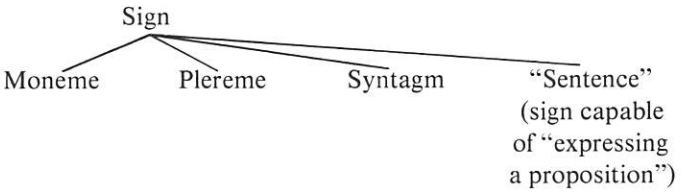
† See J. W. F. Mulder, "Postulates for Axiomatic Functionalism", in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press (forthcoming).

‡ It is not even clear whether *any* "sentence" can be said to "express" *a proposition*. The relation between "sentence" and "proposition" is liable to be less direct and straightforward than this would suggest. There is reason to believe that there are signs whose utterances have *denotata* which, in turn, can be conveniently represented as logical propositions. But it is rather the case that logical propositional formulae may be models for individual *denotata* of certain utterances, than that signs (as classes of utterances) "express" individual propositions.

matical criterion at all, and cannot be used for justifying the elevation of "sentence" to a separate rank in the same classification of grammatical subtypes of sign as moneme, plereme and syntagm. At best, such a criterion would serve as a purely *ad hoc* means of maintaining an intuitive and traditional notion, leading to a classification to be visualized on p. 102.

This classification could, however, only be called *grammatical* up to the point where moneme, plereme and syntagm are distinguished from one another by grammatical criteria. "Sentence", in this scheme, would still qualify only as an *ad hoc* subtype of *syntagm*.

The elevation of "sentence" to a fourth, separate category of grammatical types of sign implies a classification of the following form:



As it stands, this classification is not only ill-justified by its use of a purely *ad hoc* criterion alongside with the grammatical criteria that define moneme, plereme and syntagm, but is completely theoretically unsound, since it draws a false dichotomy between syntagm and "sentence". Insofar as "sentences" can "express propositions", this is, as we have seen, not a property that distinguishes them from syntagms, for, in the same sense, syntagms can also "express propositions".

Mulder's solution to the notion "sentence" shows a departure from traditional views by establishing "sentence" in a classification quite separate from that of the grammatical categories (moneme, plereme and syntagm).† The criterion for "sentencehood" in this approach is the possession by an entity of properties that make it automatic for realizations of that entity to convey self-contained messages in actual communication (for details see Mulder 1974). Grammatical entities in languages do not, of themselves and by themselves, have such properties – not without, for instance, a certain intonation being superimposed on them. In other words, it is only grammatical entities

† See Mulder's axioms and definitions in J. W. F. Mulder, "Postulates for Axiomatic Functionalism", in J. W. F. Mulder and S. G. J. Hervey, *The Strategy of Linguistics*, Scottish Academic Press (forthcoming).

together with certain intonations (and/or other properties) which, when realized, convey self-contained messages in actual communication. Consequently (grammatical) syntagms can, at best, only serve as "bases" (though not the only "bases") for what Mulder calls *sentences*. This means that we may, at a pinch, classify syntagms that correspond to "sentence-bases" (together with pleremes, and other entities, that also correspond to "sentence-bases") into a particular category; a category identified by non-constructional criteria, i.e. by the fact that, together with other features (e.g. intonation), such entities are realized as conveying self-contained messages. The potential classification of signs into those that correspond to "sentence-bases" and those that do not, would cut across the grammatical classification of signs into monemes, pleremes and syntagms, rather than adding a separate category to that classification. Thus, signs corresponding to "sentence-bases" belong to one or other of the grammatical categories, and can be described as such – in other words, there is no reason why the category of signs corresponding to "sentence-bases" should require special and separate treatment in a denotational sign semantics. For instance, those syntagms which happen – not by virtue of being syntagms, it transpires – to correspond to "sentence-bases" can and should be treated in "axiomatic semantics" *simply* as syntagms, for that is all they are from a pleremic point of view. A syntagm such as *the employees of the firm showed a very commendable diligence*, which happens to correspond to a "sentence-base", can be treated simply as a sign in its own right – a sign that, although it is complex, is nevertheless an entity with a fixed-conventional denotation.

Notwithstanding my arguments for considering the traditional "sentence" as a notion ill-defined, and ill-adapted for the purposes of grammar or denotational semantics, it would be foolish of me to face – unnecessarily – the charge of being unable to deal in "axiomatic semantics" with entities that fall under the category of so-called "sentences" (i.e. entities of the type: *the employees of the firm showed a very commendable diligence*, *the man hit the boy*, *he went for a walk*, etc.). The first point here is to establish that there is a category in Axiomatic Functionalism which corresponds, at least in the case of English, relatively closely to what, in general, is called a "sentence".†

† The extent to which any "axiomatic functionalist" notion corresponds to current "generativist" notions of "sentence" is extremely hard to determine, especially as "sentence" appears to be used as a primitive in "generative" approaches. How-

This category, however, is one that Axiomatic Functionalist theory would recognise as no more than a particular subcategory of the syntagms of English – namely that of *predicative syntagm*. A *predicative syntagm* is a syntagm whose nucleus (see Mulder 1974) is either a verb or verbal syntagm, or a copulative predicative. Examples of such *predicative syntagms* (in English) – e.g. *the employees of the firm showed a very commendable diligence*, *the boy stood on the burning deck*, *he is a fool*, *he was elected president*, etc. – show that predicative syntagms are indeed that class of entities which are traditionally labelled "sentences".

Theoretically speaking there is no justification in "axiomatic semantics" for singling out predicative syntagms† for special treatment in a separate chapter. Yet there are certain strategical reasons which make this issue worth separate discussion.

For one thing, probably no current theory would be considered respectable if it did not explicitly deal with the "meaning" of so-called "sentences", since this is thought to be something special. Although I do not agree that so-called "sentences" are, among syntagms, a law to themselves, or that they have denotational properties that make them intrinsically different from other subtypes of syntagm, yet the current obsession with "sentences" forces me to impress upon readers the fact that "axiomatic semantics" *can* deal with the description of entities that in contemporary literature are called "sentences". In other words, although I would not use the term "sentence" – but rather the term "predicative syntagm" – for those entities which in current terminology are called "sentences of English", this does not mean that "axiomatic semantics" cannot deal with the description of such entities.

For another thing, the treatment of syntagms in denotational sign semantics would, in any case, require illustration. Thus, if it is remembered that, *mutatis mutandis*, whatever goes for the treatment

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ever "surface-sentences" in transformational-generative linguistics would appear, judging from the host of English examples in the literature, to correspond to what "axiomatic functionalist" descriptions would classify as instances of *predicative syntagms*.

† Logico-semantics would see such a justification in the fact that these syntagms "express" propositions, but I have already explained my objections to this point of view (see footnote on p. 102). It might be argued, of course, that the *denotata* of utterances of such syntagms are "special" in that they can be represented by propositions to which truth-values can be attached, whereas other denotata would, in logical form, be represented by constants or variables.

of predicative syntagms, holds good also for syntagms in general, then the present chapter will serve a second useful purpose of illustrating principles and methods in the semantic description of syntagms.

Furthermore, I intend to insist, in what follows, that the notion of a "logico-semantic sentence analysis" (e.g. in terms of a case-grammar framework) hinges fundamentally on a misplaced interpretation of intuitively observed "facts". There is, indeed, something in the data of English, as observed purely intuitively, that lends a certain credibility to an analysis of so-called "sentences" in terms of such "cases" as Actor, Action, Goal etc. However, I believe that the reason why analysing and classifying

The man is eating

as an Actor-Action construction is intuitively satisfying lies in the relation of

The man is eating

to a *hyperonym*

Somebody is doing something.

(Syntagms of the form "*x* is *y*-ing" have as their *common* hyperonym either the sign (syntagm) *Somebody is doing something*, or the sign (syntagm) *Something is doing something.*) It is this possession of a common hyperonym between syntagms – one with a high degree of generality, owing to the large number of syntagms having the same common hyperonym – which, rather than the attribution of a common "underlying structure", should be used in the explanation of how syntagms are semantically related to one another.

Dealing with predicative syntagms (alias "sentences") provides an opportunity for indicating what amounts to a (both traditionally and currently) common misinterpretation of intuitively perceived "similarities" between so-called "sentences". Observation and intuition provide the "fact" that

The man is eating
John is coming
My daughter is working, etc.

are semantically similar to each other in some way in which none of them is similar to

The man eats a banana
She sings songs
My daughter paints pictures, etc.

It is easy, but in my opinion quite uncalled for, to attribute the admitted semantic similarity of the first set of syntagms (*alias* "sentences") to one another, and their admitted semantic dissimilarity from the second set, to the possession by members of the first set (but not by members of the second) of a common "structure". It is this uncalled-for assumption that underlies "logico-semantics". Rather than attributing the semantic similarities to common "logico-semantic structures" of a hidden ("deep") and ultimately extremely speculative nature, it is far more realistic simply to attribute them to overt hyperonym-hyponym relations between syntagms. In this way it can be pointed out that

The man is eating
John is coming
My daughter is working, etc.

are semantically similar to one another because they share the *common hyperonym*

Somebody is doing something.

This at the same time explains why

The man eats a banana
She sings songs
My daughter paints pictures, etc.

which have the *common hyperonym*

Somebody does something to something

constitute a different set from

The man is eating
John is coming
My daughter is working, etc.

Attributing the semantic similiarities and dissimilarities exemplified above to "logico-semantic structure" (e.g. case-structure) has as one of its unfortunate implications the need for an "absolute" framework of, by necessity *speculative*, "semantic universals". As against this,

attributing these similarities and dissimilarities to hyperonym-hyponym relations is simply a "relative" matter overtly establishable within the particular language under consideration. Other unfortunate repercussions of the "logico-semantic" interpretation arise with regard to the question of whether it makes any sense at all to maintain that "sentences" (not, in any case, well-defined) have "logical" (i.e. propositional) structure, and whether such "structure" can properly fall under the domain of an autonomous linguistics (cf. Hjelmslev 1957, p. 96, and 1961). As against this, there is no doubt about the rationality of positing that, say, *The man is eating* and *John is coming* have a common hyperonym *Somebody is doing something*. Nor is there any real doubt as to the relevance of hyperonym-hyponym relations to the domain of linguistic semantics.

Reverting for the moment to the treatment of syntagms in general, grammar deals with these in terms of their paradigmatic constituents (pleremes or further "embedded" syntagms), and of the syntactic relations holding between those constituents. Thus, syntactic relations and the analysis of syntagms (including so-called "sentences") belong sovereignly to grammar. An analytic-synthetic semantics purporting to capture the "semantic structure" of syntagms presupposes

(*a*) that a syntactic analysis has identified the relevant paradigmatic constituents, as well as the relevant syntactic relations holding between these constituents;
(*b*) that the semantic features of the paradigmatic constituents can be described (this is the task of denotational sign semantics);
(*c*) that a theory has been evolved for describing the semantic roles of the relevant syntactic relations (this is the task of a "syn-semantics").†

In fact it is possible in grammar to conceive of syntagms (and this includes, of course, predicative syntagms) either in terms of constituent paradigmemes standing in syntactic relations with one another, or alternatively, in terms of *syntagmemes*, each consisting of a paradigmatic entity and the *position* in which it stands (see the definitions in my Introduction). It is logically feasible, then, to proceed, in semantics, to a statement of the semantic features of the paradigmatic constituents within syntagms. This, however, does not give a full semantic description of syntagms, only a grammatical

† See also Chapter XIII.

description of them supplemented by a semantic characterization of the constituent *signs* they contain. There is, of course, more to the "meaning" of a syntagm than what can be accounted for by a semantic characterization of its constituent signs – the semantic role of the syntactic relations between those constituents must also be accounted for. Thus a full semantic description of a syntagm in analytical terms can only be arrived at if we can give a semantic characterization of the *syntagmemes* of which that syntagm is a simultaneous bundle (Mulder 1968). However, a theory of sign semantics – while being an essential prerequisite to the semantic description of syntagmemes – is not, and could not be, equipped to deal with the semantic characterization of *syntagmemes* without exceeding its own defined scope, for, in order to do this, it would have to deal also with the *semantic role of syntactic relations*.

As a consequence of the clearcut difference we draw between, on the one hand, grammatical constituent signs and their denotations, and, on the other hand, syntactic relations and their semantic roles, we have to recognise two types of "semantics" as quite distinct enterprises: "denotational sign semantics" and "relational syn-semantics". Only as a culmination and synthesis of these two will it be theoretically feasible to indulge in "semantic syntagm-analysis" – and this is beyond the scope of the present work, though clearly a candidate for later development in "Axiomatic Functionalist" theory. In the absence of such a synthesis between a sign semantics and a "syn-semantics" – not only in "Axiomatic Functionalism" as it stands, but in semantics in general – statements of "semantic syntagm-analysis" would, no matter how much they were cloaked in semantic terms, either remain purely grammatically based, or be worthless without the backing of an explicit theory to provide for their interpretation and verification.

Furthermore, it should be noted that it is not necessary, in first instance, to deal "analytically" with the "meanings" of syntagms – though this, also, should eventually be possible within "Axiomatic Functionalist" linguistics. Initially, however, the "meanings" of syntagms can, and should, be approached directly through the denotation of these syntagms in their capacity of being *signs* in their own right; that is to say a theory of denotational sign semantics should first be applied to syntagms as *wholes*, not as bundles of syntagmemes. We have said earlier that signs are given semantic features through the direct attributes of their corresponding deno-

tation classes. In this respect the predicative syntagm (*alias* "sentence") need be no exception. Being by definition a type of syntagm, which in turn is a type of sign, it follows that a predicative syntagm may also have its semantic features derived through the direct attributes of its corresponding denotation class in a way that is entirely consistent with the derivation of the semantic features of monemes, pleremes and other syntagms. What we are maintaining here is that syntagms, and therefore also predicative syntagms (including so-called "sentences"), should be assigned semantic features in exactly the same way as other signs, *via* their denotation classes, rather than by reference to their analysis into lower level constituents.†

The denotation class corresponding to a predicative syntagm (or to *any* syntagm) is capable of being properly included in the denotation classes of other signs (usually other syntagms of the same subtype). Thus for instance the denotation class consisting of a potentially infinite number of denotata corresponding to utterances of the predicative syntagm "John hit the ball", is properly included in the denotation class, for instance, of the sign (predicative syntagm) "He hit the ball". This is because every member of the denotation class of "John hit the ball" is a denotatum capable of being denoted by an utterance of "He hit the ball", whereas not every denotatum of utterances of "He hit the ball" can correspond to some utterance of "John hit the ball". Some may, for instance, correspond to utterances of "Paul hit the ball", "Peter hit the ball", "The batsman hit the ball", etc.

We have already described earlier the method of deriving direct attributes for a given denotation class, with reference to the direct proper inclusion of that denotation class in the denotation classes of other signs in the same language. This method is applicable to signs in general, and, as we have just seen, applicable to so-called "sentences" in particular. Stating the semantic features of any sign in terms of the direct attributes of its denotation class is a main principle of "axiomatic semantics", and it would be inconsistent, as well as unnecessary, to depart from this principle in the case of predicative syntagms.

† I stress again that the semantic description of syntagms by reference to their analysis into constituents is envisaged as a further possibility within "axiomatic functionalist" theory, but is left over until such time as the development of a theory for semantic treatment of syntactic relations is completed.

As with the establishment (in the description of a language) of the semantic features of any sign, we must ensure, in the case of predicative syntagms, that no semantic feature is derived from an indirect attribute, and that all the semantic features are derived correctly on the basis of *proper inclusion* of one denotation class in that of another sign.

Thus *He hit the ball* is a semantic feature of the syntagm "John hit the ball", if and only if the following conditions are fulfilled:

(1) The denotation class of "John hit the ball" is *properly* included in the denotation class of "He hit the ball"; that is to say there is no denotable which can be a denotatum of an utterance of "John hit the ball", without also being capable of corresponding to an utterance of "He hit the ball" (but not *vice versa*).†

(2) "He hit the ball" is a *direct* hyperonym of "John hit the ball"; that is to say, English contains no sign which is both a hyperonym of "John hit the ball" and a hyponym of "He hit the ball".

The latter condition may be tautologously re-stated as a requirement that, no *bona fide* semantic feature of "John hit the ball" (or of any sign) may be implied by any other feature of the same sign. This is true in the sense that if the feature *X* is implied by the feature *He hit the ball*, but the feature *He hit the ball* is not implied by the feature *X*, then *X* is not a *bona fide* semantic feature of "John hit the ball". It is also true in the sense that if the feature *A specific man hit the ball* implies the feature *He hit the ball* and the feature *He hit the ball* implies *A specific man hit the ball*, then the two features do not constitute *separate* semantic features, but are identical.‡ If, that is to say, there is *mutual implication* between *He hit the ball* and *A specific man hit the ball*, then the two do not constitute two non-identical features, only alternative *labels* for one and the same feature. In such a case either of the labels may be selected to represent the single semantic feature in question.

A semantic feature of a sign is not itself a sign, it is only an abstraction derived from a sign (or several synonymous signs) *via* the notion of direct proper inclusion of denotation classes by other

† There is, of course, a special problem connected with "proper names" but let us assume here, for the sake of argument, that "John" has become so conventionalized that its utterances can only correctly denote males.

‡ It is, however, debatable whether this is the case. I am not in the possession of a sufficient body of data in English to decide this point either way.

denotation classes. Consequently there is no logical absurdity implied by non-identical signs yielding one and the same feature, provided the denotation classes of those signs are identical (i.e. the signs are synonymous).

In an actual description of an English predicative syntagm we may, to a certain extent, rely on our intuition for pre-selecting suspected features of that syntagm. As I have intimated earlier, the role of intuition, once we have a logically consistent theory to apply to the data, is restricted to organizing the data in such a way as to shorten the actual process of describing the particular phenomena in question.

By intuitive pre-selection we may make the following list of suspected features of "John hit the ball" as a first step in setting up a description of that syntagm in terms of semantic features:

(1) *He hit the ball* (?)
(2) *The man hit the ball* (?)
(3) *The male creature hit the ball* (?)
(4) *A specific male creature hit the ball* (?)
(5) *John struck the ball* (?)
(6) *John set the ball into motion* (?)
(7) *John exerted force on the ball* (?)
(8) *He exerted force on the ball* (?)
(9) *John hit the round object* (?)
(10) *John hit the article of sports-equipment* (?)
(11) *John hit the toy* (?)
(12) *John hit the round article of sports-equipment (?)
(13) *John hit the globular article of sports-equipment (?)
(14) *John hit a specific ball* (?)

In what follows we eliminate, in the order given, from the list of suspected features those items which

(*a*) are not hyperonyms of "John hit the ball" (i.e. whose denotation classes do not properly include that of "John hit the ball");
(*b*) are implied by at least one other item in the list of items that remain after (*a*) has been applied (i.e. which are manifestly not *direct* hyperonyms of "John hit the ball").

The tentative feature (2) is ruled out on the first count, since the *conventions* (note that there are uses of "John" which are not in

accordance with the conventions; e.g. if we were to call a matchbox "John") allow an utterance of "John" to denote a boy or even, for instance, a male monkey, and therefore "The man hit the ball" is not a hyperonym of "John hit the ball".

There is mutual implication between (1) and (3) since all male creatures may in fact be referred to as "he" and *vice versa*. Therefore (1) and (3) yield one single feature, and either of them may be chosen to represent that feature.

The suspected feature (4) is implied by the feature (3) and is ruled out on the second count (see (*b*) above).

Item (5) does not constitute a feature of "John hit the ball", since the denotation class of the latter overlaps totally with the denotation class of "John struck the ball", instead of being properly included by it. "John hit the ball" and "John struck the ball" are synonyms of one another.

Item (6) is ruled out on the first count (see (*a*) above) since its denotation class does not properly include that of "John hit the ball". The evidence offered for this is the fact that there is at least one denotatum of an utterance of "John hit the ball" which is not a denotatum of an utterance of "John set the ball in motion", notably a circumstance (denotatum) in which John hit the ball without actually setting it in motion.

Item (7) cannot be ruled out on either count and may be assumed to be a feature of "John hit the ball".†

Item (8) is implied by item (7) and consequently is not a feature of "John hit the ball".

Item (9) is not a feature of "John hit the ball" since it is implied by items (12) and (13).

Item (10) is eliminated for the same reason as item (9).

Item (11) does not constitute a feature of "John hit the ball" because its denotation class does not properly include the denotation class of "John hit the ball" (roughly speaking, this is for the reason that "not every *ball* is a *toy*").

Item (12) might at first sight appear to be synonymous with (13), because in common parlance "round object" and "globular object" are often interchangeable. The two are nevertheless not synonymous,

†Such an assumption is always of a hypothetical nature in that we can never be certain that the "discovery" of additional data will not invalidate it.This however is true of any descriptive statement, not only in linguistics, but in all the empirical sciences. The so called Law of Gravity *may* also be invalidated by the "discovery" of additional data.

for the class corresponding to "circle" is properly included in the denotation class of "round object" but not in the denotation class of "globular object". Consequently we must conclude that item (12) is in fact implied by item (13), and is a *bona fide* feature only if (13) is *not*.

Item (13) is not a hyperonym of "John hit the ball", since not all balls are globular (as rugby-players will readily agree). (13) is therefore excluded from the list of features – which implies that (12) is given the status of a feature.

Item (14) cannot be excluded on the basis of the list of items given, and must be considered as a feature of "John hit the ball".

On the basis of the above examination of items (1)–(14), we are left with the following list of the semantic features of "John hit the ball":

(*a*) *He hit the ball* (or *The male creature hit the ball*) /Items (1) and (3)/
(*b*) *John exerted force on the ball* /Item (7)/
(*c*) *John hit the round article of sports-equipment* /Item (13)/
(*d*) *John hit a specific ball* /Item (14)/

The syntagm "John hit the ball" is characterized by the above four semantic features in a more potent way than it could be characterized by any synonym or any mere statement of the semantic identity of its grammatical components "John", "hit", "the" and "ball" (compare "The ball hit John", which also contains the same paradigmemes). Whereas an explanation of the "meaning" of "John hit the ball" by a synonym would always remain in an important sense circular and trivial, the semantic features of that syntagm can be

(*a*) referred back to the syntagms from which the features were derived (e.g. *He hit the ball* derived from "He hit the ball");
(*b*) these syntagms can in turn be referred back to their own hyperonyms, and through the hierarchy formed by hyperonyms of the hyperonyms etc., ultimately to a common hyperonym of all the four features, namely the syntagm "Somebody did something to something".

This process, in fact much too complicated to trace step by step without examining a prohibitively large body of data, can be schematically represented in the following diagram:

Common Hyperonym of the Direct Hyperonyms of "John hit the ball"
"Somebody did something to something"

Hierarchy of the Hyperonyms of "John hit the ball"

"Somebody hit something"	"Somebody did something to the ball"	"John did something to something"	"Somebody did something to some ball"
"Somebody hit the ball"	"John did something to the ball"	"John hit something"	"John hit some ball"

Direct Hyperonyms of "John hit the ball"

"He hit the ball"	"John exerted force on the ball"	"John hit the round article of sports-equipment"	"John hit a specific ball"

"John hit the ball"

Whether signs can be traced back *via* their semantic features (derived from direct hyperonyms) to a Universal HYPERONYM (of all signs in the language in question) is not particularly significant. However, sets of predicative syntagms can be traced back to certain *common hyperonyms*, which may, in fact, be used to characterize these sets of syntagms, just as the signs "object", "quality", "process", "relation",† etc. – being *common hyperonyms* of large classes

† Roughly into "substantives", "adjectives", "action-words" and "relation-words", respectively.

of English signs – may be used for classifying those signs. The resulting classes of predicative syntagms would, I suggest, correspond closely to intuitively defined "sentence-types" such as "'Actor Action goal' sentence-type",† "'Actor Action' sentence-type",‡ etc. Similarly, the classification of "words" into classes, on the basis of *common hyperonyms*, would be found to correspond with intuitive "semantic" categories, such as Substantive, Adjective, etc. This possibility of classification of signs under *common hyperonyms* is an interesting implication of the present semantic theory. It is a notion, however, which will not be further developed here.

Returning to the semantic characterization of the sign "John hit the ball" we can note that the semantic features characterize the denotation class of that sign by locating it as the intersection of the denotation classes of the signs from which the semantic features are derived. Thus in the particular instance of "John hit the ball", that sign is characterized by its features in the sense that the denotation class of "John hit the ball" is identical to the class of denotata constituted by the intersection of "He hit the ball", "John exerted force on the ball", "John hit the round article of sports-equipment" and "John hit a specific ball".§

The following diagram, of a type not generally used in set-theory, but particularly suited to my present purpose, shows the way the intersection of the denotation classes of "He hit the ball", "John exerted force on the ball", "John hit a specific ball" and "John hit the round article of sports-equipment" overlaps totally with (is identical to) the denotation class of "John hit the ball".

Key:

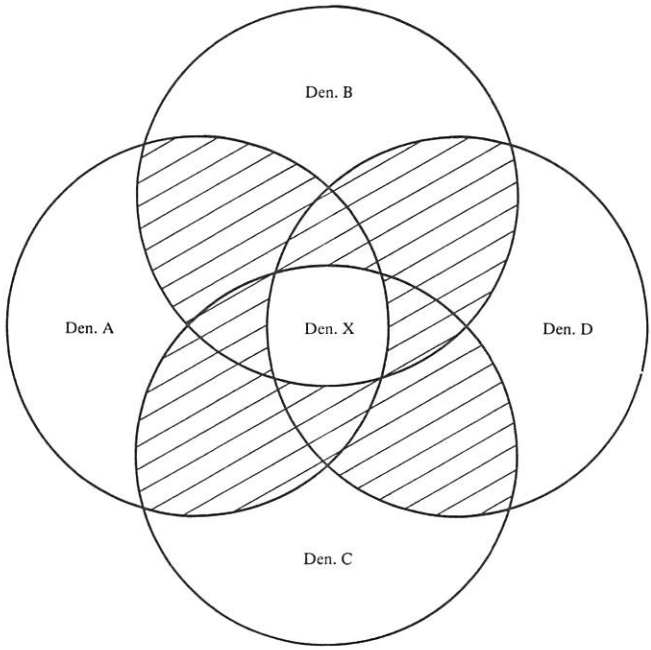
Den. A for denotation class of "He hit the ball"

Den. B for denotation class of "John exerted force on the ball"

† The class of predicative syntagms which have the *common hyperonym* "Somebody does something to something".

‡ The class of sentences which have the *common hyperonym* "Somebody does something".

§ It may be argued that the denotation class of "John hit the ball" could be more adequately described by saying that all its members are circumstances in which there is at least one member of the class of "John" and a member of the class of "hit" and an aforementioned member of the class of "ball". Such a statement, apart from being purely intuitive, and lacking in rigorous theoretical foundation, is also inadequate. A more adequate intuitive description would have to state also, that the action belonging to the class of "hit" is one performed by a member of the class of "John" upon a member of the class of "ball". Such a statement would not even have the advantage of simplicity over the method using semantic features.



Den. C for denotation class of "John hit the round article of sports-equipment"
Den. D for denotation class of "John hit a specific ball"
Den. X for denotation class of "*John hit the ball*"

It should be noted that the amalgamation of these semantic features into a single feature *He exerted force on a specific round article of sports-equipment* would not yield a *bona fide* semantic feature of "John hit the ball", since each of the features A, B, C and D in fact implies *He exerted force on a specific round article of sports-equipment*. In other words, we cannot amalgamate, for the purposes of simplicity, the above four features and thereby obtain a single feature. This is because consistency in the theory takes precedence over simplicity, and the theory lays down that no semantic feature of any sign may be one that is implied by another feature of the same sign.

Since the semantic features of a given sign are not assigned on the basis of synonymy, each of them may be a feature of a sign not synonymous with the given sign. For instance, the features of "John

hit the ball" may each be features of some other sign. In other words, "John hit the ball" and other *non-synonymous* syntagms may have *some* semantic features in common (though they cannot have identical sets of features). In this way the semantic feature *He hit the ball* is a feature not only of "John hit the ball", but of other (non-synonymous) predicative syntagms such as "Peter hit the ball", "Paul hit the ball", etc.

Similarly *John exerted force on the ball* is not only a feature in common between the synonyms "John hit the ball" and "John struck the ball", but also may well be a feature in common between a number of other syntagms which are not synonymous with "John hit the ball", such as "John kicked the ball", "John set the ball in motion", "John pushed the ball", "John patted the ball", etc. On the other hand, while the synonyms "John hit the ball" and "John struck the ball" have all their semantic features in common, they share only one feature with the latter set of predicative syntagms (namely the feature *John exerted force on the ball*), and none with syntagms such as "Peter kicked the ball', "Paul kicked the ball", etc.

John hit the round object of sports-equipment is a semantic feature shared by the syntagm "John hit the ball" and "John hit the shot" ("shot" as in "putting the shot").

John hit a specific ball is a feature that "John hit the ball" shares with predicative syntagms such as "John hit this ball", "John hit that ball", etc.

Thus we see that each of the semantic features of the syntagm "John hit the ball" is a feature shared with at least one other non-synonymous sign. This is not an accidental property of semantic features, but is implicit in the theory, and in keeping with the functional principle.† A distinctive feature in phonology is "functional", in the sense that it is a feature of at least two phonemes, and the *only feature* not common to at least one pair of phonemes. In the same sense "semantic features" are "functional" in that, no feature is posited which may not be a feature of at least two semantically non-identical (i.e. non-synonymous) signs – both direct paronyms with respect to the sign from which the feature is derived – and every feature is such that it may be the *only feature* not in common between at least one pair of signs.

† "Functional" is taken in the sense of "separately relevant to the purport of the whole of which it is a part"; see J. W. F. Mulder, *Sets and relations in phonology*, Oxford, 1968, p. 10.

Furthermore, the test of adequacy is satisfied by the proposed semantic description of predicative syntagms in terms of semantic features, for no two syntagms will be given identical sets of semantic features unless they are indeed semantically equivalent, that is to say synonymous. Synonymous signs on the other hand must be given identical sets of semantic features, and this holds for synonymous syntagms, no matter what grammatical differences, in terms of paradigmatic elements, or of syntactic relations, there are between the syntagms in question.

This may not be immediately obvious in an instance such as the predicative syntagms "John hit the ball" and "The ball was hit by John", for if we derive their features separately, the two syntagms will appear not to have any features in common.

"John hit the ball"	"The ball was hit by John"
He hit the ball	*The ball was hit by him*
John exerted force on the ball	*Force was exerted by John upon the ball*
John hit the round article of sports-equipment	*The round article of sports-equipment was hit by John*
John hit a specific ball	*A specific ball was hit by John*

The difference between corresponding features is however only one of "labelling". Just as the distinctive feature "occlusive" (a feature of English /b/, /d/, etc.) might equally well be labelled "stop", without the identity of the feature being in any way affected, so the difference between *He hit the ball* and *The ball was hit by him* does not affect the identity of the feature for which the two items above are alternative labels.

The denotational identity of "He hit the ball" and of "The ball was hit by him" (that is to say, the fact that they correspond to identical denotation classes) is borne out by the fact that there is no denotable circumstance capable of being denoted by an utterance of "He hit the ball", which is not also capable of being denoted by an utterance of "The ball was hit by him", and *vice versa*. Therefore, the difference between *He hit the ball* and *The ball was hit by him* is one of labelling, and not a difference which affects the identity of the feature involved.

What goes for this pair of the features of "John hit the ball" and "The ball was hit by John", goes, for the same reasons, also for the rest of the pairs of features. Ultimately, the same set of features

characterizes "John hit the ball" and "The ball was hit by John", only each feature may have alternative labels.The relation between, for instance, *He hit the ball* and *The ball was hit by him* is one of mutual implication, that is to say of *equivalence*. Labels of features which imply one another, i.e. are *equivalent*, do not in fact stand for separate features, but for one and the same feature.

The method of constructing a list of suspected semantic features for a syntagm can be reduced to the devising of suspected direct hyperonyms for that syntagm. As we have seen in the example of "John hit the ball", direct hyperonyms of a syntagm *may* contain the same set of syntactic positions with different paradigmatic elements in them (e.g. "He hit the ball"). This is not a requirement in any logical sense (e.g. "The ball was hit by him"), yet the fact that direct hyperonyms *may* have (at least at certain levels of syntactic analysis) the same positions as their direct hyponyms, affords a convenient method for drawing up lists of suspected direct hyperonyms for syntagms.

I will continue to use the instance of "John hit the ball" for developing and illustrating a procedure of making lists of suspected direct hyperonyms for predicative syntagms.

At the lowest level of syntactic analysis the predicative syntagm "John hit the ball" contains four positions. The elements standing in these four positions in the syntagm I shall call *Replaced elements*. In the same four positions we may substitute other signs (paradigmemes) which I shall call *Replacing elements*. There is of course, no logical guarantee that, even if the replacing elements are themselves direct hyperonyms of the replaced elements, the resulting syntagms will necessarily be direct hyperonyms of the syntagm "John hit the ball". However, no such guarantee is necessary for compiling lists of *suspected* direct hyperonyms, for this method is not meant as a substitute for the *testing* of direct hyperonymy through direct proper inclusion of denotation classes, but merely as a method for preselecting the items to be thus tested.

In the case of "John hit the ball" we can set up the following set of pairs of replaced and replacing elements:

Replaced element	Replacing element
John	He
hit	exerted force on
the	a specific
ball	round article of sports-equipment

Using all the replacing elements in the four positions of "John hit the ball" will give us the syntagm "He exerted force on a specific round article of sports-equipment", which on consideration turns out to be a hyperonym, but not a direct hyperonym of "John hit the ball", in spite of the fact that each replacing element is a direct hyperonym of the corresponding replaced element.

By using the replacing elements one at a time we can construct the predicative syntagms:

"He hit the ball"
"John exerted force on the ball"
"John hit a specific ball"
"John hit the round article of sports-equipment"

These syntagms correspond exactly with the four features of "John hit the ball", as stated above (p. 114). Consequently, for a method of devising a list of suspected direct hyperonyms the following procedure is suggested:

(1) By setting up syntactic positions in the original syntagm, and taking the paradigmemes standing in those positions, make a list of *replaced elements*.
(2) For each replaced element list all the possible *replacing elements*, such that each replacing element is a direct hyperonym of its corresponding replaced element.
(3) Construct syntagms by substituting the replacing elements for their replaced counterparts, *one at a time*, while keeping the rest of the syntagm constant.

The list of all possible syntagms constructed in such a way will constitute the *suspected* direct hyperonyms of the original syntagms. The actual test, involving the notions contained in the theory (i.e. applying rigorously the conditions laid down by the definition of "semantic feature"), must subsequently be performed on the list of suspected direct hyperonyms, before features can be posited. The advantage of the replacive method is that this test may thus be applied to a relatively small pre-selected inventory.

In terms of symbols, we can describe the above procedure as follows:

Take a given syntagm "X"
By syntactic analysis five positions (say) are set up in "*X*". The list

of paradigmemes in those positions, constitute the replaced elements:

a
b
c
d
e

Direct hyperonyms of each of the replaced elements are listed:

Replaced elements	Replacing elements
a	*f, g*
b	*h, i, j*
c	*k, l*
d	*m, n*
e	*o, p, q*

From the above list syntagms are constructed by replacing *a*, *b*, *c*, *d*, *e*, one at a time, with corresponding replacing elements.

It is, of course, possible that not all the combinations will produce acceptable syntagms, but these can be eliminated from the list of suspected direct hyperonyms of "*X*". Assuming, however, that all the combinations produce proper syntagms, the list of suspected direct hyperonyms of "X" will be as follows:

"*fbcde*"; "*gbcde*"; "*ahcde*"; "*aicde*"; "*ajcde*"; "*abkde*"; "*ablde*"; "*abcme*"; "*abcne*"; "*abcdo*"; "*abcdp*"; and "*abcdq*".

From the above list, according to the conditions that have to be satisfied by the semantic features of a sign, the list of features of "*X*" can be derived.

Replaced elements	Replacing elements
the	a specific
stallion	adult horse, adult male equine, male horse
kicked	exerted force, performed an action with the feet
the	a specific
boy	young male anthropoid, young human, male human

The above English example will be used to further illustrate the replacive method for setting up the list of suspected direct hyperonyms of "The stallion kicked the boy".

List of suspected direct hyperonyms

"A specific stallion kicked the boy"; "The adult horse kicked the boy"; "The adult male equine kicked the boy"; "The male horse kicked the boy"; "The stallion exerted force upon the boy"; "The stallion performed an action with the feet upon the boy"; "The stallion kicked a specific boy"; "The stallion kicked the young male anthropoid"; "The stallion kicked the young human"; "The stallion kicked the male human".

It seems possible, though without a fuller survey of English no final conclusion may be drawn, that a semantic feature may be posited for each of the items in the above list.

This being the case, we must conclude that, although the description of given syntagms in terms of semantic features is *in practice* and *in principle* possible, such a task is not practicable for whole inventories of syntagms. Not only the descriptive implications of dealing with an open set of items, (an infinite inventory of syntagms could never be *exhaustively* described in such a way) but also the large number of semantic features per syntagm, make such a procedure far too unwieldy. In the Chinese examples included in the second part of this book, I have made no attempt to assign semantic features to syntagms. This is not for any theoretical reason; I do not regard the grammatical distinctions between different levels of sign to be of any logical significance in the semantic theory; but for the purely practical considerations of complexity in the description.

XII

Distinctive Function, Semantic Function and Systemic Function

In Mulder's theory of the sign† there was, originally, no distinction drawn between the *semantic function* of a sign and its *distinctive function.* Indeed, for Mulder "semantic function" was, originally, a matter of both the *identity*‡ of the sign and the *semantic identity*§ of the sign. It seems, however, to be possible and desirable to distinguish in theory between

(*a*) sign-identity
(*b*) semantic identity of the sign.

The identity of signs according to the present theory is stated in terms of identity-hypotheses that specify classes of *equivalent* utterances. There are two aspects from which sign-identity can be viewed:

(*a*) positively; through equivalence-classes of utterances
(*b*) negatively; through distinctive function.

In other words, the identity of a sign is *positively determined* by the class of equivalent utterances belonging to the given sign, and *negatively determined* by the set of all signs which are opposed to the given sign in equivalent contexts.

As for the *semantic identity* of the sign, this can also be viewed from two angles:

(*a*) positively; through classes of *equivalent references*
(*b*) negatively; through *semantic function.*

That is to say, the *semantic identity* of a sign is positively determined by the *class of equivalent references* of the sign, which class is characterized by *semantic features* derived from properties of its

† J. W. F. Mulder, *Sets and relations in phonology*, Oxford, 1968, pp. 39–43. Compare, however, J. W. F. Mulder and S. G. J. Hervey, *Theory of the linguistic sign*, Mouton, The Hague, 1972.

‡ Analogous with de Saussure's notion "valeur".

§ Analogous with de Saussure's notion "signification".

appropriate denotation class. *Semantic identity* is *negatively* determined by the set of all signs which are *semantically* opposed to the given sign in equivalent contexts.

It might appear on the surface that *identity* and *semantic identity* are at least tautologous since they are positively determined by factors which mutually imply one another; i.e. class of equivalent utterances ↔ class of equivalent references. It might also be argued that the semantic features determine the *identity* of the sign as much as they determine the *semantic identity* of the sign. This however is already not quite correct, for the semantic features are derived with reference to the denotation class of the sign, and that denotation class is only indirectly related to the sign through the class of equivalent references, whereas it is directly related to the class of equivalent references which determines the *semantic identity* of the sign.

Furthermore, form classes play as much a role in the *identity* of a sign as do denotation classes, whereas *only* denotation classes play a role in the *semantic identity* of signs.

As for what determines identity and semantic identity of signs negatively, the factors *appear* to be the same in each case, but only at a superficial glance. In both cases, what seems to be involved is the set of all signs which are opposed to the sign in question in equivalent contexts. This apparent similarity between the oppositions determining the identity of the sign and those determining its semantic identity is quite misleading. Two distinct notions can be set up to clarify the issue here:

(*a*) Distinctive function (of the sign); determined by the set of other signs which can be opposed to the given sign in equivalent contexts, in such a way that by replacing the given sign by any of the items to which it is opposed, the *identity* (but not necessarily the "meaning", or semantic identity) of the whole (sign) is altered.

(*b*) Semantic function (of the sign); determined by the set of other signs which can be opposed to the given sign in equivalent contexts, in such a way that by replacing the given sign by any of the items to which it is opposed the "meaning", or semantic identity of the whole (as well as the *identity* of the whole, of course) is altered.

It should be clear by now that in the two types of opposition different criteria are involved, and that the sets of opposed items will

consequently also be different sets. In the explanations given at the beginning of this chapter, the onus of pointing out this distinction between two kinds of opposition was borne by the single word *semantically* (viz. the difference between "opposed" and "*semantically* opposed"). It is, however, a vital difference which must be enlarged upon. Wheter *a* and *b* are *opposed* in a given context depends on whether by substituting one for the other the *identity of the whole context as a sign* is altered. This is a matter of *distinctive function*. On the other hand, whether *a* and *b* are *semantically opposed* in a given context depends on whether by substituting one for the other, the "meaning", semantic identity, or *denotation*, of the whole context is altered. This latter is a question of the *semantic function* of the sign.

The difference between distinctive function and semantic function can be quickly illustrated by taking the example of the English word "bloke". The set of items opposed to "bloke" in a given context, say, "This is a . . . " includes "chap". This is clear from the fact that the identity of "This is a bloke" is distinct from that of "This is a chap", since the two syntagms differ in at least one paradigmeme (see G.C.T. II, p. 61) namely "chap" and "bloke". The latter are distinct signs with their identities set up by separate hypotheses. consequently, one of the members of the set determining the *distinctive function* of "bloke" is "chap".

On the other hand, "bloke" and "chap" (which are synonyms) are not *semantically opposed* in the context "This is a . . . " (or indeed in any context), because although "This is a bloke" and "This is a chap" are, as signs, non-identical, they are nevertheless semantically, that is to say denotationally, identical (i.e. synonymous). "Bloke" and "chap" could only be semantically opposed to one another if in at least one context one could be substituted for the other in such a way as to produce two non-synonymous syntagms. Such an instance would automatically refute the hypothesis that "bloke" and "chap" are themselves synonymous.

Any two signs, being non-identical, which can occur in equivalent contexts are *opposed* to one another. Synonymous signs are never said to be *semantically opposed* to one another. That the contrary would be absurd, will be discussed below.

In the instance of "bloke", the distinctive function of this sign is determined by a set containing "chap", but its semantic function by a set *not* containing "chap". The set of items determining the distinctive function of "bloke" is "larger" than, and *properly includes*,

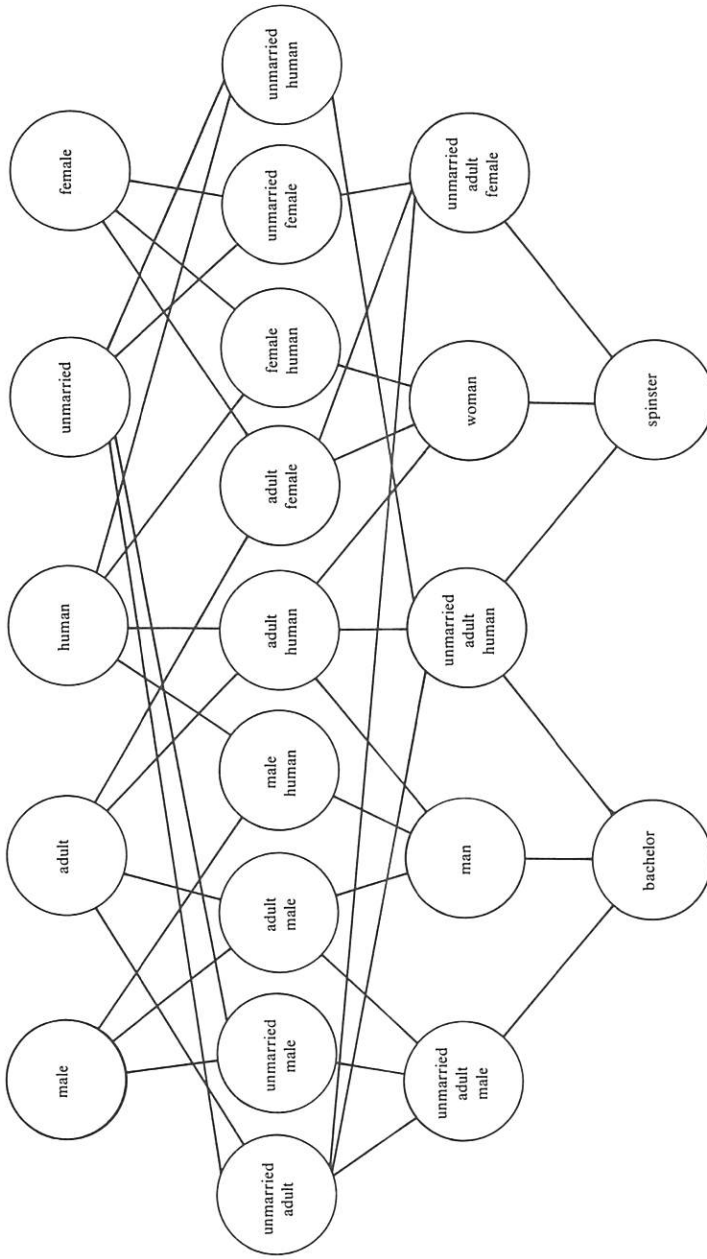
the set of items determining its semantic function. Semantic opposition implies distinctive opposition, but not *vice versa*; yet another point which underlines the non-equivalence of distinctive function and semantic function.

In the chapter on synonymy, we said that *synonymous signs are semantically* (denotationally) *identical.* That is to say, if and only if signs *x* and *y* are synonymous, they are *semantically identical.* On the other hand, if semantic identity of *x* and *y* is determined by the set of distinctive oppositions in equivalent contexts, then *x* and *y* are semantically non-identical because the distinctive function of *x* includes ~*y* (non-y), whereas the distinctive function of *y* includes ~*x* (non-x). Therefore the semantic identity of *x* and *y* is not determined by distinctive oppositions, lest we occur the absurdity that *x* and *y* are *both* semantically identical (synonymous) *and* semantically non-identical (non-synonymous).

Both distinctive function and semantic function are matters of paradigmatic oppositions established by commutation in grammatical contexts. There is yet another set of oppositions in which a sign may partake, a set of oppositions determining its *systemic function.* In a sense, the whole of the "lexicon" (that is to say, the inventory of signs) of a given language may be said to constitute a paradigmatic set. In such a set, all items are opposed to all *other* items, and thus the function of any item in the "lexicon" is determined by its complement (i.e. all other items in the "lexicon"). The systemic function of a sign is determined by its opposition to all other signs whether or not there are any contexts (that is to say, grammatical contexts) in which that sign *commutes* with all the other signs to which it is *systemically* opposed. The "lexicon" itself is the context in which systemic oppositions take place. It is, of course, never the case that all systemically opposed signs also commute with one another in grammatical contexts, and therefore the distinctive function of any given sign is a proper subset of the systemic function of that sign.

In phonology, where the inventory consists of a relatively small closed set of items, stating the systemic function of phonemes in the *overall* system is a practicable proposition. In semantics, where the inventory consists of an open set of signs,† or even if limited to pleremes, of a very large number of pleremes, systemic function must

† This is a necessary conclusion following from the fact that *syntagms* are signs, and there is, in principle, a potential for infinite recursivity in the construction of syntagms.


female
unmarried
human
adult
male
unmarried human
unmarried female
female human
adult female
adult human
male human
adult male
unmarried male
unmarried adult
unmarried adult female
woman
unmarried adult human
man
unmarried adult male
spinster
bachelor

stay, perforce, a theoretical concept as far as the overall system is concerned. On the other hand, by introducing arbitrary limits to inventories of signs, we can set up small subsystems within which systemic function can be stated. We can, for instance, consider a subsystem consisting of the *pleremes* that are hyponyms of a given sign, say the sign "horse". Within this system, provided that the number of items is relatively small (which is probably the case with hyponyms of "horse"), it is possible to describe the systemic function of the items accurately.

There is another form of presenting subsystems such as that constituted by hyponyms of the sign "horse", or, as in the illustration below, a subsystem constituted by hyperonyms of the sign "stallion", up to and including the "smallest" common hyperonyms of its direct hyperonyms. This is by ordering the items in the subsystem according to hyperonym-hyponym relations. The resulting structures have the form of *hierarchical networks* – hierarchical by virtue of the hyperonym-hyponym relations between connected nodes, and networks by virtue of the fact that each node is *directly* connected (by a single line) to more than just one single hierarchically higher and just one single hierarchically lower node.

We can, as we see above, and also in the Chinese examples in Part II, represent the *semantic structure* (determined by hyperonym-hyponym relations) of limited subsystems of signs in the form of hierarchical networks. Wherever the same sign appears in two or more hierarchical networks, this implies (at least in principle) a potential for joining the structured subsystems into a larger coherent hierarchical network. We may imagine – but, of course, cannot actually represent – the *overall semantic structure* of the inventory of signs in a language as a vast hierarchical network formed by interconnecting all subsystems containing artificially limited inventories. The information necessary for constructing – in principle – the *overall semantic structure* can be included in a "dictionary" type description that states semantic features derived from direct hyperonyms. From the semantic features of a given item we know its direct hyperonyms. These direct hyperonyms can also be listed as items with separate headings stating *their* direct hyperonyms – and so on, until we get to direct hyperonyms that do not, themselves, have hyperonyms. In such a "dictionary" we can trace the set of hyperonyms of any item by reference to semantic features. The fact that such a "dictionary" contains an implicit statement of the semantic

hierarchical network structure of the inventory supports the descriptive adequacy both of the type of "dictionary" envisaged in "axiomatic semantics", and of the type of semantic features used in this approach.

XIII

Semantics and "Cognitive Reality"

The relations of hypero-hyponymy, synonymy and paronymy are defined in "axiomatic semantics" in terms of set-theoretical relations holding between classes of entities – *denotata*. When taken out of context of the utterances to which they correspond, denotata are being viewed as *denotables*. Since there is a one-to-one correspondence between each denotable, *qua* extra-linguistic entity, and the denotatum which is "that denotable being denoted", there is little harm in calling denotata which are "the *same* denotable being being denoted": *the same denotatum*. Identity of the denotable (*qua* extra-linguistic entity) is taken, as sole criterion for the identity of the denotatum of (no matter how many) utterances involving the same denotable. Since identity of denotata (members of denotation classes) is, in turn, the key to establishing semantic relations between signs, it is clear that a potential for independent identification of denotables by certain "cognitive" means must be presupposed for semantic descriptions based on the present theory. This raises the question of the extent to which "axiomatic semantics" may be regarded as an "analysis of cognitive reality".

The position I shall take on this issue is that the *semantic structure* of a language, and the "structure of cognitive reality" require to be kept carefully distinct from one another,† and that, although human cognition is either a specimen-limited or a species-wide phenomenon (depending on whether one takes a narrow or a wide view), language, and, therefore, semantic structure within a language, is neither specimen-limited nor species-wide.‡ That is to say, if we take a narrow view of "cognitive structure" we are bound to acknowledge it as being significantly different from person to person; and, if we take a wide view, as being significantly the same for the whole of the human species. The linguist should not involve himself in phe-

† In the first place, the former is the domain of an autonomous linguistics, while the latter is the proper concern of psychology.

‡ By definition, we consider "language", and all features within the scope of "language", to be *conventional*. A specimen-limited or a species-wide phenomenon cannot justifiably be called "conventional".

nomena that are significantly different between every pair of individuals (for he distinguishes between *language* and *idiolect*, but sees the former as his proper concern). Nor should he involve himself with phenomena that are significantly the same for the whole species, for then he is not studying *languages* but the core of *mental ability* that enables all normal humans to speak and understand at least one language. While species-wide cognitive abilities must, by definition, involve a domain in which the same structure applies to English, Chinese and Hottentot alike – the semantic structures of the English language, the Chinese *language*, the *language* of Hottentots, etc. differ essentially in *structure* (for instance, in hyperonym-hyponym relations). These differences do not emerge if we take a species-wide view, nor will *these* be the differences that emerge in a specimen-limited view. Therefore, we may take it that differences in *linguistic* structure will not emerge from any "cognitive" approach, and that the "semantic structure" of a language (being a matter of conventions) cannot be equated with "cognitive structure" (being a matter of mental operations).

In order to safeguard the verifiability of denotationally based statements in semantic descriptions, it would seem to be advisable to distinguish ontologically between:

(*a*) Entities as they are – these are not admissible as evidence, since we can have no knowledge of them; all admissible evidence comes *via* the senses.

(*b*) Entities as experienced – a relation (we assume) between entities as they "really" are, and the faculty of "cognition"; in fact, entities in their capacity of being experienced and recognized as such.
i.e. entity R cognition = "cognitive entity"†

(*c*) Denotables – a relation between a "cognitive entity" and a potential for protocolizing that "cognitive entity"; in fact, a "cognitive entity" in protocolized (recorded) form.
i.e. protocolized "cognitive entity" = denotable

(*d*) Denotata – a relation between a denotable and utterances acting as "expressions" of that denotable; in fact, a denotable in its capacity of being "linguistically expressed".
i.e. denotable being denoted = denotatum

† Such "cognitive entities" are the property of individual minds, and are suitable only for introspection. In order for them to be made *ostensible* to objective scrutiny,

"Cognition" (the faculty of experiencing entities *as* entities) and "cognitive entity" (experiential percepts resulting from application of the faculty) can, of course, only be used as primitive terms, not as theoretical notions, in a theory of linguistic semantics such as "axiomatic semantics". Whether or not such notions are capable of rigorous definition in psychological theory, they are certainly not amenable to definition within linguistics. Awareness of such notions is of negative value to the linguist in that he should take care to define his scope so as to exclude such notions from linguistic theory.

As a term left undefined in linguistic semantics, and as a factor involved merely in an ontological analysis of the notion *denotable* (denotables being the entities that constitute the "substance" of semantic domains) "cognitive entity" has a place on an ontological level *below* what is analysed in linguistics. The situation can be compared with the position of the subphonetic level on which we encounter, as a primitive, the term "speech-sound". We may not ignore that such a level "exists" in counterdistinction to the phonetic level where phonetic forms are arbitrary abstractions from "speech-sounds". Thus we could define "phonetic form" analytically as "a relation between 'speech-sounds' and certain articulatory-acoustic properties; i.e. 'speech-sounds' in their capacity of having certain specific physiological-physical properties". Yet both "speech-sound" and "phonetic form" are left primitive in phonology – they are notions that are *given* for the purposes of the linguist. In the same way the level of "cognitive entities" exists in counterdistinction to the level of denotables, and we may not ignore the fact that denotables are arbitrary abstractions from "cognitive entities". At the same time both "denotable" and "cognitive entity" are left primitive in linguistic semantics – they are notions that are *given* for the purpose of the linguist. In fact, in order to ensure the verifiability of semantic hypotheses, the identity of denotables must be taken as a primitive assumption – just as the identity of "phonetic forms" (in spite of the diversity of speech-sounds) is premised for the verification of phonological hypotheses. The primitive assumption made in "axiomatic semantics" is that, if informants are presented with an entity including a "situation" which they can "sense" or "imagine" under artificial conditions manipulated by the experimenter, and if they are

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cognitive entities must be *expressible* (capable, in fact, of *protocolization*) – then, however, they are no longer *purely* cognitive entities, but rather *protocolized cognitive entities*, i.e. *denotables*.

asked to denote that entity, then the identity of that entity *qua denotable* (and also *qua denotatum*†) is a *relatively stable constant*.‡

Consequently, if informants agree on the various ways (by using various signs) in which this relatively stable entity can be denoted – and in particular on the various ways in which it *cannot* be denoted – then we have the kind of evidence on which we can base a description of the semantic structure of the language of these informants.

Semantic description in a denotational theory entails the interrelating of linguistic entities that denote with those entities that are denoted by them. In order for such descriptions to be empirically testable the entities denoted cannot be identified with "entities as they are", for we can know nothing of these as such. Nor can these entities be directly identified with "entities as they are experienced", for these experiences are the private property of individuals, and cannot, in their pure form, be imparted from person to person. The only way to make them publicly ostensible is by expressing (protocolizing) them in some form of "symbolism". The entities interrelated in a denotational semantics are the "entities as protocolized" and "certain *linguistic* elements that are capable of expressing them". It is not to be expected of denotational semantics, therefore, that it should come up with solutions concerning the nature of "experience", that is to say, of the cognitive "reality" that underlies the expression of experiences. On the contrary, semantic description cannot proceed without taking into account the existence – though emphatically *not* the "structure", or the "components" – of an underlying level of "cognition".

In *A functional view of language*,§ Martinet talks of "articulation" as being "what characterizes human language . . . in contrast with human *experience* [italics mine] before it has been analysed with a view to linguistic communication". There is no great danger of interpreting this as a licence for the linguist to make "cognitive" analyses

† We have already explained why we shall, in practice, consider the *same denotable* as denoted by any number of utterances to constitute one and the *same denotatum*.

‡ It is taken for granted that "cognition" (the faculty) varies from individual to individual in imponderable ways. It is for this reason that we recognize the intersubjective identity of "cognitive entities" (even where the same "real" object would seem to be involved) to be a *relatively* stable constant. Note that the subjective variation in "cognition" is yet another powerful reason for not allowing the semantic structure of languages to be determined by factors of "cognition" and "experience".

§ A. Martinet, *A functional view of language*, Oxford: Clarendon Press, 1962, p. 22.

of "experience", as long as sufficient stress is laid on constantly having "a view to linguistic communication". *Experience as expressed* can be said to have certain "distinctive features" – namely, those which are relevant for a choice of differential expressions – and one must assume that these "distinctive features of situations" must, *ipso facto*, be capable of being cognitively distinguished by speakers. The assumption does not hold in the reverse direction – simply because a number of cognitive features appear to be salient points of experience in a given situation it is not necessarily the case that these features are "distinctive" from a linguistic point of view.

For instance, taking Martinet's own example, let us imagine a concrete situation in which I have a headache. Speaking purely from an intuitive-cognitive point of view, I may list the following features (by introspection) which are "*distinctive*" *in that I am aware of experiencing them*:

(1) that I (and nobody else) am sensing pain;
(2) that the sensation is continuing in the present time;
(3) that the ache is felt only in one isolated area (not, for instance, at several places at a time);
(4) that the location of the ache is in my head (not, for instance, in my big toe);
(5) that the sensation I am experiencing is an acutely unpleasant one of a certain kind (i.e. that it is pain, not, for instance, a sensation of dizziness);
(6) that the headache is not as bad as it was on previous occasions;
(7) that the ache is accompanied by a slight feeling of nausea;
(8) that it appears to be located right above my eyebrows;
(9) that it continues even when I close my eyes;

and so on, *ad infinitum*.

The items listed, *plus* a potentially infinite number of other details, are all features of the situation, features that I am aware of, and at which I can arrive subjectively, by pure introspection. Only *five* of these introspectively adduced features are relevant, however, from the point of view of linguistic expression if I use an utterance of "I have a headache" to express my experience.

(1) The fact that *I* am experiencing the pain is relevant, because, were I not aware of it in *myself*, I would not select "I have a headache", but some other expression, perhaps "He has a headache".

(2) The fact that I am *experiencing* the pain is relevant, for, were this not the case, I might have selected "I remember your headache", or even "My headache is gone".

(3) That the ache is felt in *one isolated area* is relevant, for, if I were aware of several centres of pain, I might well prefer to say, "I have aches in several places in my head", or even "I am aching all over".

(4) That the location of the ache is in my *head* is relevant, because, were this not so, I would certainly not choose "I have a headache" as appropriate, but might rather select some other sign such as "I have a stomach-ache", or even "I have an ache in my big toe".

(5) That the feeling I am experiencing is an *ache* is relevant, because my awareness of this is responsible for my choice of "I have a headache" as oppossed, for instance, to "I have a dizzy feeling in my head", or even, perhaps, "I am daydreaming".

Putting it in Martinet's terms, each of the features above determines the choice of one of the five *monemes* in "I have a headache", and it is this *choice* which makes them "distinctive features of the situation".

It must be noted, however, while we are on the subject, that the relevance – with a view to communication – of these five "cognitive features" does not presuppose that their expression must necessarily be an utterance "articulated" into five monemes. Their relevance to communication (and choice) would be equally ensured in a system that contained, among others the following (imaginary) "inarticulate" items:

coish meaning "I have a headache"
bftt meaning "You have a headache"
plink meaning "My headache is gone"
tsssp meaning "I have aches in several places in my head"
frro meaning "I have a stomach-ache"
wheee meaning "I have a dizzy feeling in my head"

Awareness of each of the five "cognitive features" would determine, in this imaginary system, a choice between pairs of the expressions listed – and the five "cognitive features" would, therefore, be highly relevant to choice in communication. The same cross-classification of experiences into

(*a*) '*I*-situations'
(*b*) '*Continuing experience* situations'
(*c*) '*Singular*-situations'
(*d*) '*Head*-situations'
(*e*) '*Ache*-situations'

would apply as before, although none of the experiences could here be said to have been "analysed into monemes", or even "analysed with a view to articulated expression".

The recognition and cross-classification of certain "cognitive features" is presupposed – as we see – by the expression of experiences in communication. However, there is absolutely no guarantee that any given feature of experience – no matter how "distinctive" it may seem from the point of view of introspective awareness – has any relevance to communication, let alone to language. Such a relevance may never be presumed, but requires demonstration in each case, by pointing to a choice in expression which is governed by that feature as opposed to other features. Consequently, there is a strong argument for extreme caution in allowing – if at all – introspective "cognitive" analyses to play a role in linguistic semantics. The "articulation of experience into successive units"† is, as such, an a-linguistic, pre-linguistic or proto-linguistic matter – whose relevance to a given language requires to be demonstrated in each case by reference to *linguistic* units as being the factors producing the analysis.

Translating the above conclusion into the terms of "axiomatic semantics" we may say that

> no analysis or classification of a semantic domain (whose "substance" is constituted by *denotables*) – in fact no operation with denotables or denotata – is properly linguistic, unless it is demonstrably governed by the relation of linguistic signs to one another in the language under consideration.

That is to say, all matters of semantic structure must be based on certain relations between signs in languages, and not be performed in a vacuum.

Martinet stresses in connection with this point that "the way experience is analysed differs from one language to another".‡ That is to say, there is no pre-established stock of *universal primitives* of

† Cf. A. Martinet, *A functional view of language*, Oxford: Clarendon Press, 1962, p. 23.
‡ Ibid., p. 22.

cognitive structure which the linguist may take as his starting-point. This stipulation safeguards the objective nature of semantic analyses, preventing them from becoming intuitive "cognitive" analyses. It does so by specifying that the linguist's task is to reconstruct that particular "analysis of experience" which is proper, and at the same time unique, to a given language under consideration. Since this analysis differs in each language, it can be supported only by evidence from each given language – and not by reference to "cognitive" (so-called "*semantic*") universals. This amounts to the same as saying that the analysis is, by requirement, based on relations between signs in languages.

It would be too strong an interpretation to give to Martinet's principle quoted above were we to construe it as an *a priori* to the effect that the "analysis of experience" cannot ever be isomorphic on any points between different languages. This is, in any case, not the purport of Martinet's views.

On the other hand, it is characteristic of a *purely* "cognitive" analysis that its findings are not subject to inter-linguistic variation, since human cognition is assumed to be a species-specific, but also species-wide feature of man. Therefore, unless demonstration from the linguistic data is forthcoming, one is well within one's rights to suspect descriptions (purporting to capture "semantic structure") of being purely cognitive and non-linguistic. Here Martinet's warning is particularly to the point: "any feature of speech that is automatically found in all communities must be considered non-linguistic, or, at best, marginally so".† When applied to matters of semantic structure, the import of this is as follows: unless it is possible, at *least* in principle, to envisage inter-linguistic variation on a given point in the semantic description of a language, that point "must be considered non-linguistic . . . a matter for . . . the psychologist" whose task it is to "study man in general, assumed to be the same throughout mankind".‡

One conclusion that seems to be inescapable is that there is no demonstrable linguistic relevance in semantic descriptions that base themselves on introspective analyses of the common core of human experience, and intend to fit language onto this "cognitive" skeleton by a subsequent operation.§ Firstly, such an analysis of human ex-

† A. Martinet, *A functional view of language*, p. 23.

‡ Ibid, p. 23.

§ It might be revealing to express this in Hjelmslevian terms, pointing out that

perience is performed on "cognitive" facts that are non-linguistic, by introspective methods that are also non-linguistic – so the results of the analysis can hardly be linguistic either.

Secondly, a description of semantic structure in which a previously established, or presumed, "cognitive" framework is logically and methodologically prior to the establishment of "semantic structure"† – linguistic descriptions being loosely fitted onto a rigid non-linguistic framework – cannot purport to be reconstructions of a linguistic semantic structure since "the way experience is analysed differs from one language to another".

In the light of the foregoing, it would be to the point to examine the status of "semantic universals" in descriptions of semantic structure. We may start by noting, together with Martinet, that, the *definition of language* contains all the features that are, *a priori*, universal to all languages. "Apart from this common core, nothing can be said to be linguistic which cannot differ from one language to another." To this I might add that, since "axiomatic semantics" is part of a deductive system, apart from the "common core" actually *contained* in the definition of language, there may be other features which do not "differ from language to language", if and only if such features are *deducible* from the definition of language together with the axioms and other definitions of the theory. For example the *notion* "hyperonym" is, by implication, relevant to language in general – and so, we may say, languages have, in general, semantic structures that are hierarchical networks based on hyperonym-hyponym relations.

Insofar as putative "semantic universals" claim general applicability to all languages, they should either satisfy the condition of belonging to the common core contained in the definition of language, or be deducible from that definition (together with other tenets of the theory in question). In no linguistic theory using substantive (Chomsky 1965: 28) semantic universals can either of these condi-

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such a procedure is tantamount to performing the analysis of *purport* (an amorphous mass) not on the purport itself but on an already analyzed form of it. This would not be a valid procedure since the object that was *meant* to be analysed is *not* the object *actually* analysed: "We may imagine this purport to be analysed from many points of view, to be subjected to many different analyses, under which it would appear as so many different objects." L. Hjelmslev, *Prolegomena to a theory of language*, Bloomington, Ind., 1953, p. 51.

† See for instance the role of pre-established "logico-semantic" structure in Irena Bellert's "The logico-semantic structure of utterances" in F. Kiefer (ed.), *Studies in syntax and semantics*, *Foundations in Language*, vol. 10, 1970.

tions be fulfilled† – for, so far from the relevance of these universals being *deducible from* a definition of language, that relevance is taken as *axiomatic*, the universals being *primitives* that are *given*, independently of language.

Since the existence of substantive "semantic universals" cannot be deducible from definitions of "language", there are only two alternatives left. Either they are subject to inter-linguistic variation – as are all linguistic features not contained in or implied by the definition of language – in which case they are, of course, *not universals*. Or they are of a putatively universal nature, which could only be deductively justified with regard to features that transcend the scope of "language" (Hjelmslev 1961), in which case they are, of course, not *properly* linguistic and therefore not properly semantic entities. Both cases are absurd, and reveal the paradox to which a belief in substantive semantic universals must lead. The usual type of so-called "semantic universal" is more appropriately seen as a "cognitive" primitive borrowed from intuitive-introspective analysis of "conceptual reality".

The best way to exemplify these objections to semantic universals – in fact the charge that they are wholly inappropriate to linguistic semantics‡ – is by reference to C. J. Fillmore's exposé of componential analysis, as given in his "Types of lexical information":§

> "I assume that what we might call the basic sense of a word is typically expressible as a set of components, and that while some of these components may be idiosyncratic to particular words, others are common to possibly quite large classes of words. The components themselves may be complex, since they may be required to characterize events or situations that are themselves complex, but the ultimate terms of *semantic* description [italics mine] I take to be such presumably biologically given notions as identity, time, space, body, movement, territory, life, fear, etc., as

† Such theories are exemplified by the approaches of Katz and of Fillmore (see below).

‡ "The first point that should be made about this . . . is simply that the belief that there are few, if any 'universal, language-independent constraints upon semantic features (i.e. semantic components)' is probably most widely-held among those linguists who have had some experience of the problems of trying to compare the semantic structure of different languages in a systematic fashion. . . ." J. Lyons, "Componential analysis and universal semantics", A. and K. Lehrer (eds.), *Theory of meaning*, p. 202.

§ C. J. Fillmore, "Types of lexical information" in F. Kiefer (ed.), *Studies in syntax and semantics*, *Foundations of Language*, vol. 10, 1970.

well as undefined terms that directly identify aspects of or objects in the cultural and physical universe in which human beings live;"†

The first point to consider is whether it is posible to envisage Fillmore's "components" as being identifiable by means of some *objective* and linguistically relevant principle. Unless there is such a principle, the "components of word-sense" cannot be valid objects for scientific "discovery" within linguistics, but are, merely, intuitively selected features of "conceptual reality".

Given that we may interpret the phrase "common to possibly large class of words" as a *necessary condition* to be fulfilled by *bona fide* (linguistically relevant) components – and given also that we know precisely what it is for a word-sense to posses a particular component – it might be possible to conceive of a scientifically, and in particular, *linguistically* acceptable principle and method for analysing word-senses into semantic components.

While it is not inconceivable that that there might be such a method, neither that method, nor its underlying principles, are set out by Fillmore. On the contrary, semantic components make their appearance as though their selection from a stock of "ultimate terms" had already taken place. There are, therefore – even if, provisionally, we accept the existence of such a stock of primitive notions – two vitally important steps missing:

(*a*) demonstration that a given class of words has a given semantic component in common;
(*b*) selection of *the* set of components of a given word from the astronomically large number of potential semantic components.‡

If we consider Fillmore's examples of LEAP and JUMP, it is apparent that the test for these two entities having a common component resides simply in being able to *specify* such a component (namely the component "implying momentary change in vertical position").§ There is, in fact, no objective method for checking words

† Ibid., pp. 111–112.

‡ Assuming that both the lexicon and the stock of primitive notions are finite, a given lexical entity may still belong to a large number of classes in such a way that those classes each have a component common to their members. The number of components of that lexical entity would be truly astronomical.

§ Ibid., p. 113.

against a list of universally valid components – assigning to a word a particular component is merely a matter of ingenuity in devising the component *ad hoc*. Such being the case, step (*b*) assumes even greater importance than before. For some bounds must be set to the ingenious devising of components; otherwise triviality is bound to ensue. For instance, without safeguards, a common component could be found even in such intuitively uninteresting pairs as PAPER and PILLOW-CASE whose senses, we might say, both imply "substance with flat surface on which it is possible to write with ink". As a component of the sense of PILLOW-CASE this feature seems quite inept. It is, of course, quite clear that such trivial and inept properties are not the object of semantic description – but nowhere in Fillmore is it clear why "momentary change in vertical position" is *demonstrably* less trivial in the case of LEAP and JUMP; though *intuitively* this does seem to be the case. It is doubtful, therefore, whether Fillmore's analyses are any more than – at best – intuitive analyses based on the perception and conception of similarities and differences belonging to man's conceptual universe.

For the sake of argument I allowed above for an interpretation of the passage quoted from Fillmore in which the condition "common to possibly large classes of words" acted as *necessary criterion* for the validity of any given component. The condition is, however, not suitable for use as a rigorous criterion, for, what happens if the component is common to, say only *two* words? How does the size of the class of words to which it is common effect the validity of a component? Unless this validity is a matter of degree (which is *ipso facto* absurd), it must be the case that its being common to *two* words is sufficient for demonstrating the validity of a component – in other words, it is quite misleading to stipulate that components are common to "possibly quite large classes", since the size of these classes cannot be relevant.

On further consideration, however, it is not at all certain that even this minimum condition of being common to at least two words is *necessary* to componential analysis. On the contrary, it appears that "some of these components may be idiosyncratic to particular WORDS"† – that is to say, there may be components that are *not* common to any two (or more) words. In the absence of any necessary condition that semantic components need to fulfil in order to be valid, what is to stop one from stipulating that any given word sense

† C. J. Fillmore, p. 111.

is a bundle of an infinite number of "idiosyncratic" components – a statement which is doubtless not false, but is in no way revealing. That components may be "idiosyncratic" shows that even the most basic principle of linguistic analysis – the notion that only *recurrent* features (features that occur in at least two different contexts) qualify as linguistically relevant – is lacking from this type of semantic componential analysis. We are justified in suggesting that the methods of this componential analysis are those of pure introspection and intuition, and that the entities – the components – it deals in are not semantic elements, but, both initially and ultimately, intuitive-cognitive features. The assumption that these intuitive-cognitive features are relevant to languages is, and can only be, based on the assumption that these features are *semantic universals*. The latter assumption is not only unacceptable as we have shown earlier – there are no constraints that could make given cognitive features *a priori* linguistically relevant† – but also leads to a semantic analysis that begs every question which it ought to answer.

The most explicit negations of the linguistic nature of componential analysis are contained in the phrases "the components may be complex, since they may be required to characterize events or situations that are themselves complex" and "the ultimate terms of the *semantic* description [italics mine] . . . are biologically given notions . . .".

From the first phrase it becomes apparent that what makes a component *complex* is not a feature of its linguistic expression, or of the relation it has to other elements in the semantic structure of a given language. The complexity of a component is a property of "events and situations", that is to say, of the "conceptual reality" in which the real world is analysed by intuitive cognitive means. Such a solution is both entirely trivial and wholly a-linguistic. It is a-linguistic by the admission that complexity is a matter of "reality" and not of "linguistic expression". It is trivial, because in the intended sense *every* component is basically complex; I invite the reader to produce a component which does *not* characterize an event or situation that is, in itself, infinitely complex. We may expect a simple component to be illustrated by the component RODENT among the set of components of "rabbit". But if we ponder, as Fillmore explicitly invites, the "real nature of the situation" characterized by RODENT, we should find that *understanding* a situation

† I.e. languages are arbitrary conventions.

involving the presence of a *rodent* calls upon our entire conceptual mechanism, and our whole understanding of the universe (as far as it goes). This makes the "simple" situation involving a *rodent* as complex, in Fillmore's sense, as any situation can be. If such a situation is to be called "simple", it can only be so by reference to the fact that it may be expressed by the single word "rodent" *in English*, as opposed to situations which require, by necessity, a more complex expression: e.g. "The daughter of the President of the Board of Trade". A description that takes a view of "events and situations" from the aspect of their "real" complexity or simplicity cannot purport to be a linguistic description – if it is a semantic one, then, here, the term "semantic" is used in a philosophical, rather than a linguistic sense.

One may reasonably except the "ultimate terms" of a biological *description* to be *biological* terms. Chemistry does not use the models of physics, but uses *chemical* terms for chemical *descriptions*. Similarly, we may require, if any value is to be attached to the statement that linguistics is a science, that the "ultimate terms" in a semantic *description* be *semantic terms*. This is not to say that semantic terms may not bear some indirect relation to terms that are not themselves defined within semantics – indeed, the terms of semantic descriptions should be applicable to independent primitives (i.e. protocolized data); however, that relation should not be one of direct identity, but of descriptive isomorphism. Descriptions, after all, must be given in the technical terms of the particular theory employed, and the terms of a description cannot *both* be technical terms *and* primitive terms in the same theory. In fact, in order for descriptions to be verifiable within a particular discipline, those *descriptions* should not contain terms which are primitive within the discipline – otherwise the descriptions are either not verifiable at all, because some of their terms have imprecise meanings, or are, at least, not verifiable except from *without* the discipline in question. (E.g. The ultimate *terms* of a phonological description are phonological forms – phonemes, distinctive features – and not phonetic forms, let alone "sounds".)

Consequently, if the "ultimate terms" of componential analysis are "biological notions", we should expect the resulting semantic description to be a biological one, and not a linguistic one. However, Fillmore clearly cannot mean that "identity", "time", "space" etc. are "biological" notions – these are surely not capable of biological definition – but, rather, that the kind of "ultimate terms" he has in

mind are a function of the physical and cultural universe and man's (biologically determined) cognitive faculties: that is to say, they are what I have referred to as "cognitive entities" (cf. p. 132). While we must assume that such entities do ontologically underlie the things expressed by utterances (i.e. the denotata), it is not the cognitive entities but the actual denotata themselves which must be the ultimate irreducibles in semantic descriptions.

It has already been argued earlier that linguistic semantic structure is determined by the interrelation of linguistic signs as regards their respective denotations. The ultimate terms in such a semantic structure cannot be "biologically given notions", but must be structural notions *inherent to language*. That "biologically given notions" should be *universal* to all language-descriptions would mean furthermore that these descriptions were insensitive to speech-data. Such primitives as "identity, time, space, body, movement, territory, life, fear, etc." are not conducive to use in linguistic descriptions: both because these terms are "*cognitive* entities" and because they are *universals*; they are "species-wide" conceptual terms, and are not determined by linguistic conventions within given speech-communities.

There is, it must be admitted, a certain intuitive satisfaction in the use of "semantic" terms in sentence-analysis such as:

Agent (A), the instigator of the event;
Counter-Agent (C), the force or resistance against which the action is carried out;
Object (Q) etc.†

However, the real question is, how much theoretical justification, as opposed to intuitive satisfaction, there is in the use of such terms in *linguistic* semantics. The answer to this question must depend on the extent to which terms like the above can be said to purport to matters of actual semantic structure. A possible interpretation of terms such as Agent, Counter-Agent, etc. in semantic descriptions is that they derive their semantic relevance from certain common hyperonyms of large – and non-intersecting – classes of signs *in English*.‡ Their classificatory usefulness, under this interpretation, should be wholly analogous with that of terms such as *animal*, *human*, *inanimate*, etc.

If we may use the terms *animal*, *human*, *inanimate* in a semantic description of English this is justified because they

† Cf. C. J. Fillmore, p. 116.

‡ Cf. Chapter XI, p. 116.

(*a*) partake as *signs* in the semantic structure *of English*;
(*b*) yield convenient subdivisions of the semantic domain of English into discrete sub-domains.

Insofar as *animal*, *human* and *inanimate* are useful classificatory hyperonyms in English, they determine certain large classes of pleremes that are their hyponyms. By virtue of hyponymy, the signs "horse", "dog", "elephant", "whale", "chicken", etc. are members of a class *animal* in the semantic domain of English. Whereas it may not be very interesting whether or not "dog" is a hyponym of "biter", it is interesting, *because of the position of "animal" in the semantic hierarchy of English*, to note that "dog" is a hyponym of "animal".

As well as there being extensive classes of signs which are hyponyms of "animal", "human" and "inanimate" respectively, there are also numerous signs which are excluded from each of these classes. Thus, giving the information that a given sign belongs to one another of these classes proves to be an economical way of distinguishing the "meaning" of that sign from that of many other signs.

None of the above considerations justifying the use of *animal*, *human* and *inanimate* apply to any of the terms Agent, Counter-Agent, Object etc. These latter do not, as signs, constitute hyperonyms of large non-interesting sets of signs in English. So far from being classificatory terms for sets of hyponyms, the terms Agent, Counter-Agent and Object are – or at least are intended to be – classificatory terms for the "semantic" properties of certain *grammatical functions*.† This being so, however, the classification is vacuous without

(*a*) a prior determination of *grammatical functions*;
(*b*) a rigorous definition of "grammatical meaning"‡ (as opposed to "sign meaning").

In other words, in order for the terms under discussion to be terms in a *linguistic* description at all, they must be based on relations in *grammar*, not on the "logical structure of reality"; and if they are to

† The signs "man", "dog" etc. do not belong as signs to any of the categories Agent, Counter-Agent, etc., but in certain grammatical uses may be employed as any of the above. The members of these categories are not signs but *syntagmemes* (cf. Chapter XI, p. 108).

‡ "It is to be noted, however, that any comprehensive treatment of the significance of sentences in such terms (of componential analysis) presupposes an adequate syntactic analysis of sentences and satisfactory rules for the semantic interpretation of the relevant grammatical relations." J. Lyons, "Componential analysis and universal semantics" in A. and K. Lehrer (eds.), *Theory of meaning*.

be *semantic*, they must purport to a well-defined notion of "grammatical meaning".

It is not only obvious that Agent, Counter-Agent, Object, etc. are not based on previously established grammatical functions (no such grammatical functions are independently established by Fillmore), but also that they *are* based on the "logical structure of reality" (which, in this case, is only another term for "intuitive analysis of cognitive reality"). For instance, verbs are classified by Fillmore, not by any linguistic criteria, but by the number of "conceptually necessary arguments"† which they take.‡ If it were necessary to further emphasize that "conceptually necessary arguments" are not linguistic features, one could also point to the fact that, according to Fillmore, there is "no exact correspondence between . . . these and the number of obligatorily present syntactic constituents in expressions"; that is to say, the number of "necessary arguments" is not subject to demonstration *via* features of linguistic expression.

As it is to be expected, the introduction into semantic descriptions of elements arrived at by intuitive examination of "conceptual" features yields arbitrary and ambiguous solutions.

A verb such as MOVE, is said to be able to occur, for instance, with one, two or three arguments.§ But if we consider the "conceptually necessary" arguments, *strictly* from the point of view of conceptual necessity, this statement is simply not true. In its occurrence in

THE ROCK MOVED

the verb MOVE still *conceptually* (though not *linguistically*, but this is not relevant to Fillmore) requires

the instigator of the event (if only the force of gravity),
i.e. an Agent;
the force or resistance against which the action is carried out,
i.e. a Counter-Agent;

as well as the necessary Object, which is the entity that moves.‖

† Note Lyons' admonishment that ". . . semantic theory should avoid commitment with respect to the philosophical and psychological status of 'concepts'". Ibid., p. 204.

‡ C. J. Fillmore, "Types of lexical information" in F. Kiefer (ed.), *Studies in syntax and semantics*, *Foundations of Language*, vol. 10, 1970, p. 118.

§ I.e. terms that are conceptually necessary to the notion of movement.

‖ See Fillmore's definitions of Agent, Counter-Agent, etc. in his "Types of lexical information" in F. Kiefer (ed.), *Studies in Syntax and Semantics*, *Foundations of Language*, vol. 10, p. 116.

However, once we are on the subject of arguments being "conceptually necessary", we may note that, in this sense, MOVE also requires

the entity that comes into existence as a result of the action (Result).†

That is to say, it is *inconceivable* that anything that moves should move without this action resulting in a changed situation.

The same reasoning could be used in order to enumerate other "conceptually necessary" arguments of MOVE:

the stimulus or immediate physical cause of the event (Instrument),‡
i.e. it is inconceivable that anything that moves should move without an immediate physical cause;
the place to which the movement is directed (Source),§
i.e. it is inconceivable that anything that moves should move without that movement being directed to a particular place;
the entity which receives or accepts or experiences or undergoes the effect of an action (Experiencer),‖
i.e. it is inconceivable that anything that moves should do so without undergoing the effects of this action.

Not only may we maintain, along these lines, that MOVE conceptually requires all the above "arguments" from the list outlined by Fillmore himself, but we may ourselves invent further "necessary arguments" to augment the set of "arguments" for MOVE:

space in which movement is possible,
i.e. it is inconceivable that anything that moves should do so without a suitable spatial context for this action;
time in which movement takes place,
i.e. it is inconceivable that anything that moves should do so without the motion taking a specific length of time;
speed of movement,
i.e. it is inconceivable that anything that moves should do so without the movement having a specific velocity;
type of movement,
i.e. it is inconceivable that anything that moves should do so without that movement being of a certain kind:
e.g. rolling, sliding, falling etc.

† Cf. C. J. Fillmore. ‡ Cf. ibid. § Cf. ibid. ‖ Cf. ibid.

Such a list could probably be implemented to infinity, demonstrating that MOVE is, conceptually speaking, an infinite-argument predicate – or rather, demonstrating that the whole method of "conceptually necessary arguments" is fruitless, since, ultimately it will lead to regarding verbs as bundles of innumerable "conceptual" properties – a view which, even if not invalid, is uninformative and unhelpful.

As to how *speculative* such matters of "conceptual necessity" are, this is revealed by the fact that they open the door to such barren metaphysical queries as:

> is the presence of an intelligent observer (real or imaginary) a "conceptually necessary argument" for the verb MOVE,
> i.e. is it *conceivable* for something to move if there is no potential observer to observe that motion?

Yet there does not seem to be a less open-ended, and at the same time more objectively language-oriented, interpretation of the notion "conceptually necessary argument". Fillmore is quite explicit that this notion does not correspond to the idea of arguments actually expressed by linguistic units.

> "To say that conceptually ROB and BUY are 3- or 4-argument predicates respectively is to acknowledge that even when we say merely
> (28) SHE ROBBED THE BANK
> we understand that she took something out of the bank, and when we say
> (29) SHE BOUGHT IT
> truthfully, it is necessarily the case that there was somebody who sold it to her and that a sum of money was exchanged."†

If this line of reasoning used by Fillmore is valid, then, probably, we ought to consider that even when we say merely

SHE ROBBED THE BANK

we understand that she robbed a bank at a specific time; and that when we merely say

SHE BOUGHT IT

it is necessarily the case that there was a specific location at which

† Cf. ibid., p. 115.

the transactions took place – thereby increasing the number of arguments for ROB and BUY.

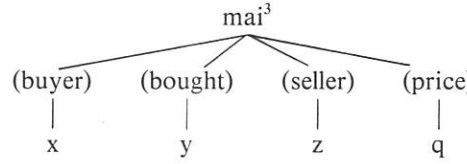
On the other hand, we are not even quite satisfied that some of the arguments said to be necessary for BUY are actually necessary. It is possible that

SHE BOUGHT IT

is quite a truthful statement even if she got it out of a slot-machine – in which case there was nobody to sell it to her – or if she got it on credit and failed to pay for it – in which case no sum of money was actually exchanged.

The notion of "conceptually necessary argument" allows so much room for fruitless speculation that – if only in order to avoid such vacuity – "axiomatic semantics" is justified in insisting on semantic descriptions being directly concerned with discernible relations between well-defined linguistic entities, and being directly demonstrable in terms of "linguistic expression".

Though notions such as Agent, Counter-Agent, etc. are seen by Fillmore as applicable to all languages, there is every reason to believe that they are, instead, inappropriate to linguistics. Not only is it the case that they are, in principle, non-linguistic – "any feature of speech that is automatically found in all communities must be considered non-linguistic . . ."† – but, by virtue of their insensitivity to features of linguistic expression, they fail to lead to adequate linguistic descriptions. An example of such inadequacy is to be found in, for instance, Chinese. The Chinese "verb" *mai*^{3} represents a case which could not be adequately described within the Fillmorian framework. Being a semantic equivalent of the English verb BUY, which would be its English rendering, the Chinese "verb" *mai*^{3} would, presumably, have to be treated as a 4-argument predicate, represented in the Fillmorian manner as:



with the brackets indicating the fact that each of the arguments is "optional" from the point of view of expression. Such a description

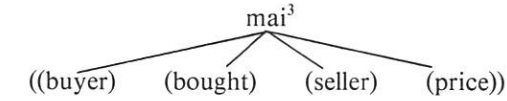
† A. Martinet, *A functional view of language*, Oxford: Clarendon Press, 1962, p. 23.

does not answer the situation in Chinese, proving insensitive to the linguistic data on the following points:

(*a*) In Chinese, unlike in English, *mai*^{3} can occur without any of the arguments being expressed by a corresponding syntactic constituent.

(*b*) In Chinese, unlike in English, deletion of the "mention" of the argument "the entity bought" constitutes *expression* of the fact that that entity is *non-human*, (compare *Mai*^{3}*le ta*^{1}, "Bought him/her" with *Mai*^{3}*le*, "Bought some/it").

The former fact is perhaps expressible by additional bracketing as:



The latter, involving an intrinsic difference† between *not expressing an argument but leaving it to be "understood"* and *expressing an argument by "zero form"*, is a feature which cannot be adequately described, and cannot even be meaningfully assessed, in the type of analysis under consideration.

The above case of inability to distinguish the *linguistic* properties of English BUY from that of Chinese *mai*^{3} in an adequate fashion‡ shows up the characteristic insensitivity to linguistic data which is inherent in approaches that attempt to fit semantic descriptions onto a rigidly pre-established "universal cognitive" framework. For the purposes of "axiomatic semantics" the shortcomings pointed out above are taken to serve as adequate justification for avoiding similar pitfalls. Such pitfalls can only be avoided, however, by consistent rejection of all forms of "semantic universalism" and of "cognitive-conceptual speculation". The resulting "linguistic relativism" provides the motivation for "axiomatic semantics" to insist on viewing:

(*a*) the "substance" of semantic domains in terms of *denotables* – not of cognitive entities (and certainly not in terms of cognitive "universals");

(*b*) the "semantic structure" of a language in terms of relations between signs (and their respective *denotation classes*) in the given language (and certainly not by reference to conceptual "universals").

† It is doubtful if this intrinsic difference could even be interpreted in a theory that treats unexpressed, but conceptually necessary, arguments as "*understood*".

‡ The two are *conceptually* akin, but linguistically different, as we have seen.

PART TWO

APPLICATION TO MANDARIN CHINESE

I

Hyponyms of "ssŭ³tiao⁴" ("to die")

The inventory given below is based on a list of tentative signs compiled by work with Chinese informants in Taipei, Taiwan.† Informants were asked to list all the "signs" which "describe various ways of dying". The result was a tentative list of the hyponyms of the word "ssŭ³tiao⁴", that is to say a limited set covering the "field" of "ssŭ³ tiao⁴". Of each tentative sign in the entative list, it was noted down what form class(es) its utterances belonged to. Of each of these form classes it was then tested whether it contained utterances

(*a*) not belonging to the field of "ssŭ³tiao⁴";
(*b*) not belonging to the given tentative sign, but to a homonym.

An attempt was made at determining the denotation of the tentaive sign by testing the informants' reactions to devised synonyms, and direct hyperonyms. The identity hypotheses which follow are made on the basis of the data collected thus.

A condition for signs to belong properly to the inventory, is that *all the signs should be hyponyms of "ssu³tiao⁴"*. A second condition for further limiting the set of items, is that only *words* may occur in the inventory. None of the final hypotheses is refuted by confrontation with the data as supplied by the informants. The confrontations will not be described, as these were in fact peformed step by step during the tentative stage of many hours' work with informants. The hypotheses have been empirically tested during this stage as to whether "all utterances belonging to the form class {"/x/"}" or "some utterances belonging to the form class {"/x/"}" etc., are assignable to the sign in question.

They were tested also, as far as it was possible with my limited resources for carrying out a large-scale survey, as to whether the corresponding denotation classes of the signs were correctly described by the *attributes* from which the semantic features were finally derived.

† This applies to each of the inventories included in subsequent sections of this thesis.

Inventory

(1) A subclass of the form-class {"/men^{4}s^3/"}† and no other utterances constitute the sign "mên^{4}ssŭ^3",‡ with the feature *chih^{4}hsi^2* and *ssŭ^{3}tiao^4*.

Remarks: The sign "mên^{4}ssŭ^3" means roughly "to die of suffocation". It has at least two homonyms, one with the meaning "stuffy or sultry" (cf. "mên^{4}ssŭ^{3}jên^{2}tê^{0}k'ung^{1}ch'i^0", "stuffy atmosphere (literal)"); the other a synonym of "wu^{2}liao^2" ("bored and dejected").

(2) Members of the form class {"/saŋ^{4}miŋ^4/"}and no other utterances constitute the sign "san^{4}ming^4", with the features *ou^{3}jan^2 ssŭ^{3}tiao^4*, *jên^{2}ch'u^{1}shih^4* and *ch'ü^{4}shih^4*.

Remarks: The sign "sang^{4}ming^4" can be rendered roughly into English by "to die by misadventure (of humans)". Although "ssŭ^3 tiao^4" can be used of any living being, "sang^{4}ming^4" applies only to humans (cf. "jên^{2}ssŭ^{3}tiao^{4}ts'ai^{2}chiang^3'sang^{4}ming^4", "one only says "sang^{4}ming^4" when a human being dies"). The features of "sang^4 ming^4" are, respectively, "to die by misadventure", "to suffer injury to life or limb by misadventure (of humans)" and "to die (of humans)".

(3) A subclass of the form-class {"/Sie^{4}š^4/"} and no other utterances constitute the sign "hsieh^{4}shih^4", with the features *tsai^{4}jên^2 shên^{1}shang^{0}fa^{1}shêng^{0}pu^{2}hsing^4* and *ssŭ^{3}tiao^4*.

Remarks: The sign could be described in English as an elegant euphemism of "to die", used only of human beings. It has at least one homonym "hsieh^{4}shih^4" meaning "to give up, to throw up an affair".

(4) Members of the form class {"/lau^{3}s^3/"} and no other utterances constitute the sign "lao^{3}ssŭ^3", with the semantic features *lao^{3}êrh^{2}fa^1 shêng^{0}pu^{2}hsing^4* and *ssŭ^{3}tiao^4*.

Remarks: The sign "lao^{3}ssŭ^3" means "to die of old age". Rough indications of the meaning of the first features are as follows: "to sustain harm (or injury) in (and as a result of) old age'. The sign "lao^{3}ssŭ^3" can apply to any living organism (e.g. "lao^{3}hu^{3}lao^{3}ssŭ^3 lê", "the tiger has died of old age").

(5) Members of the form class {"/z^{4}bi^4/"} and no other utterances

† Mulder's phonological notation is used throughout the following chapters, cf. J. W. F. Mulder, *Sets and relations in phonology*, Oxford, 1968.

‡ In the labels for signs and for semantic features the Wade-Giles system of romanization is used throughout the following chapters.

constitute the sign "tzŭ⁴pi⁴", with the semantic features *tzŭ⁴sha¹* and *ssŭ³tiao⁴*.

Remarks: The sign "tzŭ⁴pi⁴" means "to commit (successfully) suicide", its feature *tzŭ⁴sha¹* can be rendered by "to attempt (either successfully or not) suicide". Although "tzŭ⁴sha¹" and "tzŭ⁴pi⁴" may at first sight appear to be synonyms, this is clearly not the case, for there are instances where "tzŭ⁴sha¹êrh²ping⁴pu²ssŭ³" applies and instances in which "tzŭ⁴sha¹êrh²ssŭ³" applies ("to attempt suicide unsuccessfully" and "to attempt suicide successfully", respectively), whereas with "tzŭ⁴pi⁴" the adding of ". . . êrh²ssŭ³" is a tautology ("to commit suicide successfully and die"). A synonym of "tzŭ⁴pi⁴" is in fact "tzŭ⁴sha¹êrh²ssŭ³". The hypothesis is made on the assumption that no other signs have members belonging to the form class {"/z⁴obi⁴/"}.

(6) Members of the form class {"/z⁴Zin⁴/"} and no other signs constitute the sign "tzŭ⁴chin⁴", with the semantic features *tzŭ⁴sha¹* and *ssŭ³tiao⁴*.

Remarks: The sign "tzŭ⁴chin⁴" is a synonym of "tzŭ⁴pi⁴". As such it has all its features in common with "tzŭ⁴pi⁴".

(7) Members of the form class {"/Ciau²bien⁴z/"} and no other utterances constitute the sign "ch'iao²pien⁴tzŭ⁰", with the semantic features *tsai⁴jên²shên¹shang⁰fa¹shêng⁰pu²hsing⁴* and *ssŭ³tiao⁴*.

Remarks: The sign is a synonym of "hsieh⁴shih⁴" and of other signs limited to denoting "dying" in the case of human beings. Informants have rejected utterances of "lao³hu³ch'iao²pien⁴tzŭ⁰" ("the tiger died").There is a stylistic difference between "ch'iao²pien⁴tzŭ⁰" and its "polite" synonyms, the former is very colloquial and jocular, and would best be rendered by "to kick the bucket" or some such English expression.

(8) A subclass of the form class {"/š⁴š⁴/"} and no other utterances constitutes the sign "shih⁴shih⁴", with the features *tsai⁴jên²shên¹ shang⁰fa¹shêng⁰pu²hsing⁴* and *ssŭ³tiao⁴*.

Remarks: The sign "shih⁴shih⁴" is a synonym of "hsieh⁴shih⁴" and other signs limited to denoting "dying" in the case of human beings. It is not very frequently used in the vernacular. A homonym of this sign is "shih⁴shih⁴", meaning "to try" (e.g. "shih⁴shih⁴chiu⁴ shih⁴", "try and try until you succeed").

(9) A subclass of the form class {"/e⁴s³/"} and no other utterances constitute the sign "o⁴ssŭ³", with the features *yin¹wei⁰ch'üeh¹shao³ shih²liao⁴êrh²fa¹shêng⁰pu²hsing⁴* and *ssŭ³tiao⁴*.

Remarks: The sign "o^{4}ssŭ^{3}" means "to die of hunger", "to starve to death". It's first feature can be roughly rendered, by "to suffer ill effects due to lack of nourishment".

In setting up this sign some utterances belonging to the form class {"/e^{4}s^{3}/"} have to be assigned to a "metaphorical" homonym, renderable by "to be very hungry". The exaggerating use of "to die of hunger" and "to starve" produces "metaphorical" utterances in English too (e.g. "I'm dying of hunger" or "I'm starving" uttered jocularly by hungry, but well-fed individuals). In the homonym "o^{4} ssŭ^{3} (I)" the sign "ssu^{3}" itself is used metaphorically, in other words, we must distinguish between "ssŭ^{3}" ("to die") and "ssŭ^{3} (I)" (used as an intensifier like "very"). The homonym "ssŭ^{3} (I)" is commonly used in cases such as "lei^{4}ssŭ^{3} (I)" ("dead tired").

Another homonym of "o^{4}ssŭ^{3}" is the sign "o^{4}ssŭ^{3}", rendered into English by "to strangle". This sign is not a hyponym of "ssŭ^{3}tiao^{4}" but of "sha^{1}ssŭ^{3}" ("to kill").

(10) Members of the form class {"/ke^{2}s^{3}/"} and no other utterances constitute the sign "k'o^{2}ssŭ^{3}", with the semantic features *yin^{1}wei^{0} ch'üeh^{1}shao^{3}yin^{3}liao^{4}êrh^{2}fa^{1}shêng^{0}pu^{2}hsing^{4}* and *ssŭ^{3}tiao^{4}*.

Remarks: The sign "k'o^{2}ssŭ^{3}" can be rendered by "to die of thirst". Its first feature means roughly "to suffer harm (or injury) as a result of lack of drink". My informants have negatived occurrences of a metaphor "k'o^{2}ssŭ^{3} (I)" (by analogy with "o^{4}ssŭ^{3} (I)") meaning "to be very thirsty". I have also ignored the marginal possibility of a sign "k'o^{3}ssŭ^{3}" ("can die") on the grounds of its unlikely occurrence in the vernacular ("can die" in modern colloquial would be rendered by "k'o^{3}i^{3}ssŭ^{3}tiao^{4}").

(11) A subclass of the form class {"/iau^{1}že^{2}/"} and no other utterances constitute the sign "yao^{1}chê^{2}", with the semantic features *ch'ü^{4}shih^{4}*, *wei^{4}ch'êng^{2}nien^{2}jên^{2}shên^{1}shang^{0}fa^{1}shêng^{0}pu^{2}hsing^{4}* and *wei^{4}ch'êng^{2}nien^{2}êrh^{2}ssŭ^{3}tiao^{4}*.

Remarks: the sign "yao^{1}chê^{2}" can be rendered by "to die young (of humans)" and its features as "to sustain harm in youth (of humans)" and "to die before reaching adulthood". A more fancy, but nevertheless revealing, rendering of "yao^{1}chê^{2}" would be "to be cut off in the flower of one's youth". The existence of at least one homonym is recognized; there is for instance the syntagm "yao^{1}chê^{2}" ("(someone's) waist breaks").

(12) A subclass of the form class {"/zau^{3}iau^{1}/"} and no other utterances constitute the sign "tsao^{3}yao^{1}", with the features *ch'u^{4}

shih⁴*, *wei⁴ch'êng²nien²jên²shên¹shang⁰fa¹shêng⁰pu²hsing⁴* and *wei⁴ch'êng²nien²êrh²ssŭ³tiao⁴.

Remarks: The sign "tsao³yao¹" is a synonym of "yao¹chê²". It has at least one possible homonym "tsao³yao¹": "to invite early".

(13) Members of the form class {"/ian¹s³/"} and no other utterances constitute the sign "yen¹ssŭ³", with the features *mên⁴ssŭ³* and *tsai⁴i⁴t'i³li⁰chih⁴hsi²* and *tsai⁴i⁴t'i³li⁰ssŭ³tiao⁴*.

Remarks: The sign "yen¹ssŭ³" can be rendered by "to die by drowning", and its features, respectively, by "to die of suffocation", "to suffocate (but not necessarily to death) in a liquid" and "to die in a liquid (but not necessarily of suffocation)". I am assuming here, on the basis of what my informants have told me, or rather failed to tell me, that the sign "yen¹ssŭ³³" has no homonyms.

(14) A subclass of the form class {"/Cy⁴š⁴/"} and no other utterances constitute the sign "ch'ü⁴shih⁴", with the semantic features *tsai⁴jên²shên¹shang⁰fa¹shêng⁰pu²hsing⁴* and *ssŭ³tiao⁴*.

Remarks: The sign "ch'ü⁴shih⁴" is a synonym of "hsieh⁴shih⁴" rendered by "to die (of humans)". It is, stylistically, a polite variant. It has at least one homonym "ch'ü⁴shih⁴", meaning "to go and try".

(15) Members of the form class {"/biŋ⁴s³/"} and no other utterances constitute the sign "ping⁴ssŭ³", with the semantic features *ssŭ³tiao⁴* and *yin¹wei⁰ping⁴êrh²fa¹shêng⁰pu²hsing⁴*.

Remarks: The sign "ping⁴ssŭ³" can be rendered by "to die of an illness" and its second feature as "to sustain harm (or injury) as a result of illness".

(16) A subclass of the form class {"/bau⁴s³/"} and no other utterances constitute the sign "pao⁴ssŭ³", with the semantic features *ssŭ³tiao⁴* and *t'u⁴jan²chien¹fa¹shêng⁰pu²hsing⁴*.

Remarks: The sign "pao⁴ssŭ³" can be rendered by "to die suddenly (cause unspecified)" and its second feature by "to suffer sudden harm or injury to life or limb". There is at least one homonym of the sign "pao⁴ssŭ³", namely the syntagm "pao⁴ssŭ³" ("the leopard dies").

(17) A subclass of the form class {"/šou⁴žuŋ¹/"} and no other utterances constitutes the sign "shou⁴chung¹" with the semantic features *tsai⁴lao³jên²shên¹shang⁰fa¹shêng⁰pu²hsing⁴*, *lao³ssŭ³* and *ch'ü⁴ shih⁴*.

Remarks: The sign "shou⁴chung¹" can be rendered by "to die of old age (of humans)" and its features by "to suffer injury to life or

limb in old age (of humans)", "to die of old age (all living creatures)" and "to die (of humans)", respectively. Two possible homonyms suggested by my informants are "shou^{4}chung^{1}" ("to sell clocks"), and the more colloquial "shou^{4}chung^{1}" ("to get or receive a clock").

(18) A subclass of the form class {"/Ci^{4}s^{3}/"} and no other utterances constitute the sign "ch'i^{4}ssŭ^{3}", with the semantic features *ssŭ^{3}tiao^{4}* and *yin^{1}wei^{0}fa^{1}nu^{4}êrh^{2}fa^{1}shêng^{0}pu^{2}hsing^{4}*.

Remarks: The sign "ch'i^{4}ssŭ^{3}" can be rendered, with difficulty, into English, by "to die (of a stroke brought on by a fit) of rage". Its second feature is roughly translatable as "to suffer injury to life or limb as a result of a fit of rage". A homonym "ch'i^{4}ssŭ^{3} (I)" must be distinguished from "ch'i^{4}ssŭ^{3}". The former is used as a common exclamation of annoyance, having somewhat the force of "What a damned nuisance", and is probably metaphorically related to "ch'i^{4}ssŭ^{3}" ("to die /of a stroke brought on by a fit/ of rage").

(19) Members of the form class {"/žen^{4}uaŋ^{2}/"} and no other utterances constitute the sign "chên^{4}wang^{2}", with the features *yu^{2}yü^{2}ta^{3} chang^{4}êrh^{2}sang^{4}ming^{4}*, *chün^{1}jên^{2}sang^{4}ming^{4}* and *chün^{1}jên^{2}yu^{2} yü^{2}ta^{3}chang^{4}êrh^{2}ch'u^{1}shih^{4}*.

Remarks: The sign "chên^{4}wang^{2}" can be rendered in English by "to lose one's life in battle (of a soldier)", and its respective features by "to die by misadventure in combat", "to die by misadventure (of a soldier)" and "to suffer loss of life or limb by misadventure in combat (of a soldier)". I was hesitant in limiting the denotation class of "chên^{4}wang^{2}" to the class of circumstances in which not only the cause of death was specified as "death in battle", but also the sufferer specified as a soldier. However, my informants persisted in refusing to accept the death of a civilian, a non-combatant, as being correctly denotable by an utterance of "chên^{4}wang^{2}". The explanation they offered was "chün^{1}jên^{2}ta^{3}chang^{4}êrh^{2}sang^{4}ming^{4}ts'ai^{2}chiang^{3}'chên^{4} wang^{2}'" ("one can only use "chên^{4}wang^{2}" in the case of a *soldier* dying in combat").

(20) Members of the form class {"/žan^{4}s^{3}/"} and no other utterances constitute the sign "chan^{4}ssŭ^{3}", with the semantic features *yu^{2}yü^{2}ta^{3}chang^{4}êrh^{2}sang^{4}ming^{4}*, *chün^{1}jên^{2}sang^{4}ming^{4}* and *chün^{1}jên^{2}yu^{2}yü^{2}ta^{3}chang^{4}êrh^{2}ch'u^{1}shih^{4}*.

Remarks: The sign "chan^{4}ssŭ^{3}" is a synonym of "chên^{4}wang^{2}" and has all its semantic features in common with the latter. What goes for "chên^{4}wang^{2}" in the remark under its own heading goes also for "chan^{4}ssŭ^{3}".

(21) Members of the form class {"/duŋ⁴s³/"} and no other utterances constitute the sign "tung⁴ssŭ³", with the semantic features *yin¹ wei⁰lêng³êrh²shên¹shang⁰fa¹shêng⁰pu²hsing⁴* and *ssŭ³tiao⁴*.

Remarks: The sign "tung⁴ssŭ³" can be rendered by the literal meaning of "to freeze to death". Its first feature means roughly "to suffer injury to life or limb as a result of the cold". The exaggerated use of "It's freezing!" meaning "It's very cold" or "I'm freezing to death!" meaning "I'm very cold" are, according to my informants, not performed by utterances of "tung⁴ssŭ³", but by utterances of "lêng³ssŭ³" (cf. "A¹yo¹! Chê⁴li⁰lêng³ssŭ³!", "Oh! It's freezing in here!") which latter is in turn not used to mean "to freeze to death" (literally).

"o³lêng³ssŭ³", I am exceedingly cold.
"t'a¹tsai⁴shan¹shang⁰tung¹ssŭ³lê⁰", he froze to death on the mountain.
"chê⁴li⁰lêng³ssŭ³", it is freezing cold in here.

But *not*

"o³tung⁴ssu³", I am exceedingly cold.
"t'a¹tsai⁴shan¹shang⁴lêng³ssŭ³lê⁰", he froze to death on the mountain.
"chê⁴li⁰tung⁴ssŭ³", it is freezing cold in here.

(22) A subclass of the form class {"/ian¹bi⁴/"} and no other utterances constitute the sign "yen¹pi⁴", with the features *mên⁴ssŭ³*, *tsai⁴i⁴t'i³li⁰chih⁴hsi²*and*tsai⁴i⁴t'i³li⁰ssŭ³tiao⁴*.

Remarks: The sign "yen¹pi⁴" is a somewhat less colloquial synonym of "yen¹ssŭ³", "to drown", and as such has all its features in common with the latter. The sign "yen¹pi⁴" has at least one homonym, namely the sign "yen¹pi⁴" meaning "to hide or secrete (something)".

(23) A subclass of the form class {"/ni⁴s³/"} and no other utterances constitute the sign "ni⁴ssŭ³", with the semantic features *mên⁴ ssŭ³*, *tsai⁴i⁴t'i³li⁰chih⁴hsi²* and *tsai⁴i⁴t'i³li⁰ssŭ³tiao⁴*.

Remarks: The sign "ni⁴ssŭ³" is a synonym of both "yen¹ssŭ³" and "yen¹pi⁴" (above). For rendering of its features see p. 159. The sign "ni⁴ssŭ³" has at least one homonym, namely the sign "ni⁴ssŭ³", meaning "to be awfully rich and greasy (of food)". (e.g. "chei⁴k'uai⁴jou⁴ ni⁴ssŭ³" or its synonym "chei⁴k'uai⁴jou⁴ni⁴tê⁰pu²tê²liao³", meaning "This piece of meat is awfully greasy").

(24) Members of the form class {"/i^{4}s^{3}/"} and no other utterances constitute the sign "i^{4}ssŭ^{3}", with the features *ssŭ^{3}tiao^{4}* and *yin^{1} wei^{0}hou^{2}lung^{2}sai^{1}chê^{0}tung^{1}hsi^{0}êrh^{2}chih^{4}hsi^{2}*.

Remarks: The sign "i^{4}ssŭ^{3}" can be rendered in English by "to choke to death (because of something getting stuck in the windpipe)", a rather cumbersome rendering. Its second feature is equally cumbersomely rendered by "to suffocate due to something getting stuck in one's throat".

(25) A subclass of the form class {"/ni^{4}bi^{4}/"} and no other utterances constitute the sign "ni^{4}pi^{4}", with the semantic features *mên^{4} ssŭ^{3}*, *tsai^{4}i^{4}t'i^{3}li^{0}chih^{4}hsi^{2}* and *tsai^{4}i^{4}t'i^{3}li^{0}ssŭ^{3}tiao^{4}*.

Remarks: The sign "ni^{4}pi^{4}", "to die by drowning", is a synonym of "yen^{1}ssŭ^{3}", "yen^{1}pi^{4}" and "ni^{4}ssŭ^{3}". It has at least one homonym: "ni^{4}pi^{4}", "to conceal oneself". Of the four synonyms, "yen^{1}ssŭ^{3}" is, according to my informants, most commonly used in speech.

(26) Members of the form class {"/šuai^{1}s^{3}/"} and no other utterances constitute the sign "shuai^{1}ssŭ^{3}", with the semantic features *ssŭ^{3}tiao^{4}* and *yin^{1}wei^{0}shuai^{1}chiao^{1}êrh^{2}fa^{1}shêng^{0}pu^{2} hsing^{4}*.

Remarks: The sign "shuai^{1}ssŭ^{3}" can be rendered by "to die as a result of a fall (from a height or by stumbling)". Its second feature is roughly "to suffer injury to life or limb as a result of falling or stumbling". The possibility, in colloquial, of the occurrence of utterances of a sign "shuai^{1}ssŭ^{3}" ("to wither and die") was negatived by my informants, consequently I have ignored the possibility of setting up any homonym of "shuai^{1}ssŭ^{3}".

(27) A subclass of the form class {"/die^{1}s^{3}/"} and no other utterances constitute the sign "tieh^{1}ssŭ^{3}", with the semantic features *ssŭ^{3}tiao^{4}* and *yin^{1}wei^{0}shuai^{1}chiao^{1}êrh^{2}fa^{1}shêng^{0}pu^{2}hsing^{4}*.

Remarks: The sign "tieh^{1}ssŭ^{3}" according to my informants is a synonym of "shuai^{1}ssŭ^{3}"; its denotation class, as that of "shuai^{1}ssŭ^{3}", includes circumstances in which death is caused by stumbling as well as by falling from a height. The features of "tieh^{1}ssŭ^{3}" are the same as those of "shuai^{1}ssŭ^{3}". A possible homonym of "tieh^{1}ssŭ^{3}" would be the syntagm "tieh^{1}ssŭ^{3}" ("daddy dies/died").

(28) Members of the form class {"/zai^{1}s^{3}/"} and no other utterances constitute the sign "tsai^{1}ssŭ^{3}", with the semantic features *shuai^{1}ssŭ^{3}* and *yin^{1}wei^{0}tzai^{1}hsia^{4}lai^{2}êrh^{2}fa^{1}shêng^{0}pu^{2}hsing^{4}*.

Remarks: The sign "tsai^{1}ssŭ^{3}" can be rendered by "to die by falling from a height"; according to my informants it is not used for

denoting circumstances in which death is caused through injury incurred by tripping or stumbling. The features of "tsai¹ssŭ³" are "to die as a result of a fall (from a height or stumbling)", and "to sustain injury as a result of falling from a height", respectively. Note that the signs "shuai¹ssŭ³", and "tieh¹ssŭ³" are both direct hyperonyms of "tsai¹ssŭ³" and either of them may serve as a label for the feature *shuai¹ssŭ³*.

(29) Members of the form class {"/tai¹s³/"} and no other utterances constitute the sign "t'ai¹ssŭ³", with the semantic features *ying¹êrh²ssŭ³tiao⁴* and *wei⁴ch'u¹shêng⁰êrh²shên¹shang⁰fa¹shêng⁰ pu²hsing⁴*.

Remarks: The sign "t'ai¹ssŭ³" refers to stillbirth and can be rendered by "to die before birth (of unborn embryo)". The features are "to die (of a baby)" and "to suffer injury to life or limb before birth". My informants have not supplied me with occurrences of homonyms of "t'ai¹ssŭ³".

(30) Members of the form class {"/še³šeŋ¹/"} and no other utterances constitute the sign "shê³shêng¹", with the semantic features *ssŭ³tiao⁴* and *hsi¹shêng¹".

Remarks: The sign "shê³shêng¹" can be rendered into English by "to sacrifice one's life". Its features, respectively, are "to die" and "to make a sacrifice". A synonym of "shê³shêng¹" is the syntagm "hsi¹ shêng¹shêng¹ming⁴" which literally translates "to sacrifice one's life".

Note that one of the features of "shê³shêng¹" is *ssŭ³tiao⁴* and not *ch'ü⁴shih⁴*, that is to say the denotation class of "shê³shêng¹" is not limited to circumstances in which a human being lays down his life for others. My informants were quite happy to accept the sentence "kou³wei⁴jên²shê³shêng¹" ("The dog sacrificed its life for the man"), as a correct usage of "shê³shêng¹".

(31) Members of the form class {"/še³šen¹/"} and no other utterances constitute the sign "shê³shên¹", with the semantic features *ssŭ³tiao⁴* and *hsi¹shêng¹*.

Remarks: The sign "shê³shên¹", "to sacrifice one's life" is a synonym of "shê³shêng¹" above, and has its semantic features in common with the latter. This sign appears to have no homonyms.

(32) Members of the form class {"/še³miŋ⁴/"} and no other utterances constitute the sign "shê³ming⁴", with the features *ssŭ³tiao⁴* and *hsi¹shêng¹*.

Remarks: The sign "shê³ming⁴" meaning also "to sacrifice one's

life", is a synonym of "shê^{3}shêng^{1}" and "shê^{3}shên^{1}", and has its semantic features in common with these signs.

(33) Members of the form class {"/ti^{4}s^{3}/"} and no other utterances constitute the sign "t'i^{4}ssŭ^{3}", with the semantic features *shê^{3}shêng^{1}*, *t'i^{4}pieh^{2}jên^{2}ssŭ^{3}tiao^{4}* and *wei^{4}pieh^{2}jên^{2}hsi^{1}shêng^{1}*.

Remarks: The sign "t'i^{4}ssŭ^{3}" is a hyponym of "shê*g3*shêng^{1}" ("to sacrifice one's life") and can be rendered by "to lay one's life down for another person". Its features are, respectively, "to sacrifice one's life", "to die in someone else's stead" and "to make a sacrifice for the sake of someone". Note that according to my informants the denotation of "t'i^{4}pieh^{2}jên^{2}ssŭ^{3}tiao^{4}" and "wei^{4}pieh^{2}jên^{2}t'i^{4}ssŭ^{3}" is different, in fact the former "to die in someone else's stead" is a hyperonym of the latter "to lay one's life down for someone else". The former does not imply a conscious spirit of sacrifice, and would include in its denotation class circumstances in which a person died or was killed due to being mistaken for someone else. The latter, "wei^{4} . . . t'i^{4}ssŭ^{3}", as for instance in "t'a^{1}wei^{4}lê^{0}t'a^{1}tê^{0}p'êng^{2}yu^{3} t'i^{4}ssŭ^{3}lê^{0}", is limited as to denotation, to circumstances in which conscious sacrifice is involved. It is for this reason that "t'i^{4}ssŭ^{3}" is best rendered by "to lay one's life down for someone else", as this latter also implies conscious sacrifice.

(34) A subclass of the form class {"/Syn^{4}dau^{4}/"} and no other utterances constitute the sign "hsün^{4}tao^{4}", with the semantic features *shê^{3}shêng^{1}* and *wei^{4}lê^{0}tzŭ^{4}chi^{3}tê^{0}li^{3}hsiang^{3}hsi^{1}shêng^{1}*.

Remarks: The sign "hsün^{4}tao^{4}" is a hyponym of "shê^{3}shêng^{1}" and can be rendered by "to die for one's ideals or principles". Its features are "to sacrifice one's life" and "to make a sacrifice for the sake of one's ideals or principles". A synonym, used by my informants to explain the meaning of "hsün^{4}tao^{4}" is "wei^{4}lê^{0}jên^{4}ho^{2} li^{3}hsiang^{3}hsi^{1}shêng^{1}shêng^{1}ming^{4}" ("to lay down one's life for some ideal or principle").

My informants have suggested a possible homonym, namely "hsün^{4}tao^{4}" ("to accord with the Way"), for the sign "hsün^{4}tao^{4}". This homonym is possibly not in common usage in modern colloquial, but short of a statistical survey of greater proportions, I am unable to decide the issue. I can but rely on my own informants, and include "hsün^{4}tao^{4}" in this description, as a homonym of "hsün^{4}tao^{4}".

(35) Members of the form class {"/Syn^{4}ž^{2}/"} and no other utterances constitute the sign "hsün^{4}chih^{2}", with the semantic features

sang⁴ming⁴ and *wei⁴lê⁰chih²wu⁴êrh²ch'u¹shih⁴*.

Remarks: The sign "hsün⁴chih²" can be rendered by "to lose one's life by misadventure in the course of performing one's job or profession". Its features are rendered by "to die by misadventure (of humans)" and "to suffer injury to life or limb by misadventure in doing one's job or carrying on one's profession". My informants have negatived the suggestion that "hsün⁴chih²" was a hyponym of "shê³shên¹" ("to sacrifice one's life") by denying that its usage was limited to denoting circumstances in which conscious sacrifice is involved.

Note that "hsün⁴chih²" has a denotation class limited to circumstances in which humans are involved (this is an obvious implication of the fact that only humans can lose their life in the performance of their professional or occupational duties; animals are not said to hold such duties ("chih²wu⁴")).

(36) A subclass of the form class {"/Syn⁴Ciŋ²/"} and no other utterances constitute the sign "hsün⁴ch'ing²", with the semantic features *shê³shêng¹*, *wei⁴lê⁰ai⁴ch'ing²hsi¹shêng¹* and *yu²yü² ai⁴ch'ing²êrh²ch'ü⁴shih⁴*.

Remarks: The sign "hsün⁴ch'ing²" can be rendered by "to lay one's life down for the sake of love", and its features, respectively by "to sacrifice one's life", "to make a sacrifice for love" and "to die of or for love". A homonym of "hsün⁴ch'ing²" suggested by my informants is the (perhaps not very colloquial) "hsün⁴ch'ing² I" rendered by "to follow one's inclinations or emotions". The sign "hsün⁴ ch'ing²" itself has received a boost, in usage, since it has been used for translating "Romeo and Juliet" (hsün⁴ch'ing²chuan⁴").

(37) Members of the form class {"/Syn⁴gue²/"} and no other utterances constitute the sign "hsün⁴kuo²", with the semantic features *shê³shêng¹*, *wei⁴lê⁰kuo²chia¹hsi¹shêng¹* and *wei⁴lê⁰kuo² chia¹ch'u¹li⁴êrh²shên¹shang⁰fa¹shêng⁰pu²hsing⁴*.

Remarks: The sign "hsün⁴kuo²" can be rendered by "to lay down one's life for one's country", and its features, respectively, by "to sacrifice one's life", "to make a sacrifice for the sake of one's country" and "to suffer injury to life or limb in the service of one's country".

(38) Members of the form class {"/Zian¹Cy¹/"} and no other utterances constitute the sign "chien¹ch'ü¹", with the features *shê³ shêng¹*, *wei⁴lê⁰kuo²chia¹hsi¹shêng¹* and *wei⁴lê⁰kuo²chia¹ch'u¹li⁴ êrh²shên¹shang⁰fa¹shêng⁰pu²hsing⁴*.

Remarks: The sign "chien¹ch'ü¹", rendered also as "to lay down

one's life for one's country", is a synonym of "hsün^{4}kuo^{2}" above, and has all its semantic features in common with the latter.

(39) Members of the form class {"/yan^{1}s^{3}/"} and no other utterances constitute the sign "yüan^{1}ssŭ^{3}", with the semantic features *pei^{3}ch'u^{3}ssŭ^{3}* and *yin^{1}wei^{0}pei^{3}wu^{2}kao^{4}êrh^{2}shou^{4}ch'u^{3}fa^{2}*.

Remarks: The sign "yüan^{1}ssŭ^{3}" can be roughly rendered into English by "to be executed on the basis of a false accusation", "to be unjustly executed", and its features, respectively, by "to be executed" and "to suffer injury or harm as a result of being falsely accused". The direct hyperonym "pei^{3}ch'u^{3}ssŭ^{3}" is a hyponym of "ssŭ^{3}tiao^{4}", but it is a syntagm, not a single word.

(40) A subclass of the form class {"/diau^{1}Sie^{4}/"} and no other utterances constitute the sign "tiao^{1}hsieh^{4} I", with the features *ssŭ^{3} tiao^{4}* and *(chih^{2}wu^{4})k'u^{1}wei^{1}*.

Remarks: The sign "tiao^{1}hsieh^{4} I" can be rendered by "to wither and die (of plants)" and its features by "to die" and "to wither (of plants)". Just as "to wither", in English has metaphorical homonyms, the sign "tiao^{1}hsieh^{4} I" also has at least two. One of these will be discussed below under the heading of "tiao^{1}hsieh^{4} II". The other is a sign "tiao^{1}hsieh^{4} III" (synonym "nü^{3}jên^{2}lao^{3}ch'u^{4}êrh^{2}mei^{3}li^{4} hsiao^{1} shih^{1}") rendered by "beauty fades with age (said of women)" (e.g. "t'a^{1}tiao^{1}hsieh^{4}lê^{0}", "Her beauty has faded with age"). The sign "tiao^{1} hsieh^{4} III" has the features *nü^{3}jên^{2}lao^{3}ch'ü^{4}*, *lao^{3}ch'ü^{4}êrh^{2}mei^{3}li^{4} hsiao^{1}shih^{1}* and *nü^{3}jên^{2}tê^{0}mei^{3}li^{4}hsiao^{1}shih^{1}*. Rendered respectively as "to grow old (of a woman)", "to lose one's beauty with age", and "to lose one's beauty (of women)". The setting up of these features is important here, for, according to the requirements of the Denotational Theorems (see Part One, Chapter VII), *bona fide* homonyms

(*a*) do not have features in common
(*b*) do not have denotation classes that intersect.

The signs "tiao^{1}hsieh^{4} I" and "tiao^{1}hsieh^{4} III" are *bona fide* homonyms, since they fulfil both these conditions. Each will be found to be a *bona fide* homonym of "tiao^{1}hsieh^{4} II" also, for the same reasons (see item 41), and also diagrams further on in Part Two, Chapter I.

(41) A subclass of the form class {"/diau^{1}Sie^{4}/"} and no other utterances constitute the sign "tiao^{1}hsieh^{4} II" with the semantic features *ch'ü^{4}shih^{4}*, *nien^{2}ch'ing^{1}jên^{2}shên^{1}shang^{0}fa^{1}shêng^{0}pu^{2}hsing^{4}* and *nien^{2}ch'ing^{1}êrh^{2}ssŭ^{3}tiao^{4}*.

Remarks: The sign "tiao^{1}hsieh^{4} II" can be rendered by "to die in

the flower of one's youth". It is a fairly elegant euphemism used of human beings. The features of this sign can be rendered by "to die (of humans)", "to suffer injury to life or limb in one's youth (of humans)" and "to die young (not only of humans)". As these rough renderings indicate, the sign "tiao¹hsieh⁴ II" is a *bona fide* homonym of "tiao¹hsieh⁴ I" and "tiao¹hsieh⁴ III" fulfilling both conditions for this.

Remarks on the Inventory

From the foregoing inventory many interesting items have been excluded, namely the signs denoting various ways of "being killed". Had these been included, the inventory would have been, roughly, twice the size of the present inventory, and would have included various subdivisions of "being murdered", "being executed", "being burned, beaten, strangled (in three different ways), kicked etc. to death". These subdivisions, being often finer than those made in English, would be interesting because of their very difference as compared to English. Unfortunately, in this thesis I must deal with limited inventories, and one of the limitations imposed was that the inventory should include no syntagms (nothing of a higher complexity, or indeed lower, than words). In the case of the signs denoting actions of "being killed", the construction is a syntagmatic one, consisting of the passive "pei³" and a word denoting the action of killing. Thus for instance "pei³sha¹ssŭ³ ("to be killed") is a syntagm analysable into the words "pei³" (passive) and "sha¹ssŭ³" ("to kill"). The situation is analogous in the case of the whole of my inventory of signs denoting circumstances of "being killed". All the signs here are syntagms composed of the passive "pei³" and a word denoting the mode of the killing, and between these words there are syntagmatic relations. To allow any syntagm to appear in my inventory would mean that all syntagms would have to be included. This, in turn, would entail the inclusion of a potentially unlimited number of items. Consequently, I am forced to abandon that section of my projected inventory which consists of signs which are in fact syntagms consisting of "pei³" and "(a word denoting mode of killing)". These signs could better be accounted for under the heading of "sha¹ssŭ³" (to kill), where *words* denoting modes of killing could appear, rather than syntagms denoting modes of being killed.

Note that the reason for excluding signs denoting "modes of being killed" is not a semantic one but a grammatical one. If I were to find a *word* (not a syntagm), denoting a mode of being killed I should unhesitatingly include it in my inventory under "ssŭ^{3}tiao^{4}". It is not the case that I am excluding signs denoting modes of being killed *on principle*, I am only excluding *syntagms*. It just so happens that all the signs I have collected denoting modes of being killed turn out to be *syntagms*.

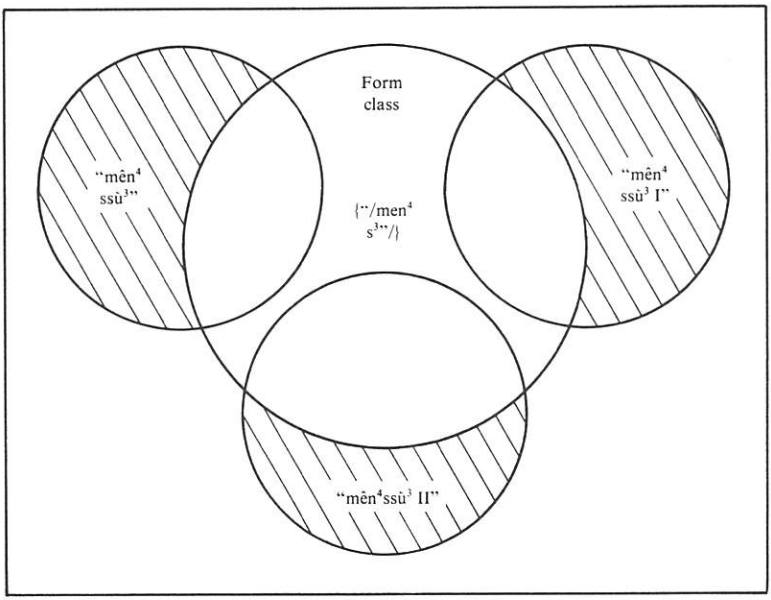
Care had to be taken in compiling and sorting my inventory so as to distinguish between items where "ssŭ^{3}" (to die) appeared, and not "ssŭ^{3} I" ("terribly"). Thus I had to distinguish for instance between "o^{4}ssŭ^{3}" and "o^{4}ssŭ^{3} I" ("to *die* of hunger", and "to be terribly hungry", respectively). In all cases I had to make sure that *death* was actually implied by utterances of the signs I was considering. Thus for instance at first sight "chih^{4}hsi^{2}" ("to suffocate") appeared to be a *bona fide* hyponym of "ssŭ^{3}tiao^{4}" ("to die"), and it was not until further quizzing of informants, that the fact emerged, that "chih^{4}hsi^{2}" may or may not entail death in the last event. Similarly, care had to be taken with words denoting "suicide", for "tzŭ^{4}sha^{1}" itself turns out only to imply the attempt, the result may or may not be death. It is for this reason, for instance, that "shang^{4}tiao^{4}" ("to hang oneself") was excluded from the inventory, as not being a proper hyponym of "ssŭ^{2}tiao^{4}". (Cf. "ch'ien^{2}chi^{3}t'ien^{1}t'a^{1}shang^{4}tiao^{4}lê^{0},tan^{4}t'a^{1}i^{3}ching^{1} t'o^{1}hsien^{3}", "a few days ago he hanged himself, but he is out of danger now/he did not die/.")

Another factor that made for difficulty and required extra care in compiling the inventory was the fact that the presence of "ssŭ^{3}", even apart from the intensifier "ssŭ^{3} I" as in "o^{4}ssŭ^{3} I" (to be terribly hungry) is by no means necessarily an indicator that the sign in question is a hyponym of "ssŭ^{3}tiao^{4}". See for instance the signs "sha^{1}ssŭ^{3}" ("to kill"), "tu^{2}ssŭ^{3} ("to poison") where the presence of "ssŭ^{3}" is no safe guide, these signs belonging in fact to words denoting modes of killing.

In what follows, I will take some of the more interesting, and perhaps not immediately obvious hypotheses in the above inventory, for discussion.

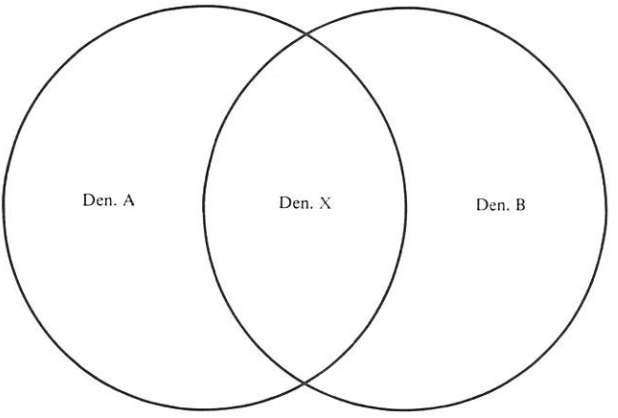
The identity hypothesis concerning "mên^{4}ssŭ^{3}". This hypothesis implies, among other things that the form class {"/men^{4}s^{3}/"} intersects with at least three signs, which in normal orthography we cannot distinguish from one another. These three homonyms, having also the

same orthography, have to be distinguished as signs by a labelling device using numbers. Thus we are suggesting the setting up of three signs "mên⁴ssŭ³" ("to die of suffocation"), "mên⁴ssŭ³ I" ("stuffy or sultry") and "mên⁴ssŭ³ II" ("bored and dejected"). The three signs may be set up according to the Theorems in my theory. Their respective denotation classes do not intersect, and have no direct attribute in common. The signs themselves intersect all with the form class {"/men⁴s³/"}, a fact which can be represented in the diagram below.



The fact that the three homonyms have no direct attribute in common tautologously implies that they have no feature (semantic) in common. This can be shown by representing the features of each of the homonyms in separate diagrams, through the proper inclusion of their denotation classes in the denotation classes of their direct hyperonyms.

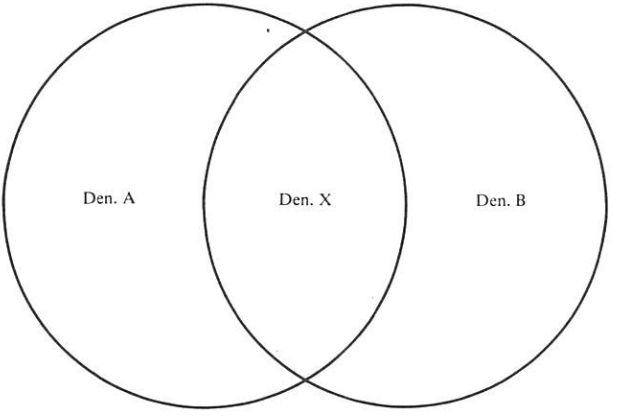
Diagram representing the intersection of denotation classes producing the denotation class of "mên^{4}ssŭ^{3}"



Key:

Den. A: denotation class of "chih^{4}hsi^{2}" (to suffocate)
Den. B: denotation class of "ssŭ^{3}tiao^{4}" (to die)
Den. X: denotation class of "mên^{4}ssŭ^{3}"

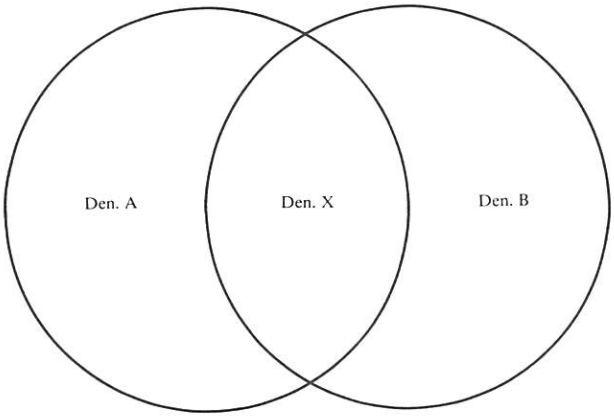
Diagram representing the intersection of denotation classes which produce the denotation class of "mên^{4}ssŭ^{3} I"



Key:

Den. A: denotation class of "k'ung^{1}ch'i^{0}pu^{1}hao^{3}" (the air is sultry/bad/)
Den. B: denotation class of "pu^{1}têh^{2}liao^{3}" (unbearable, terrible)
Den. X: denotation class of "mên^{4}ssŭ^{3} I"

Diagram representing the intersection of denotation classes producing the denotation class of "mên⁴ssù³ II"



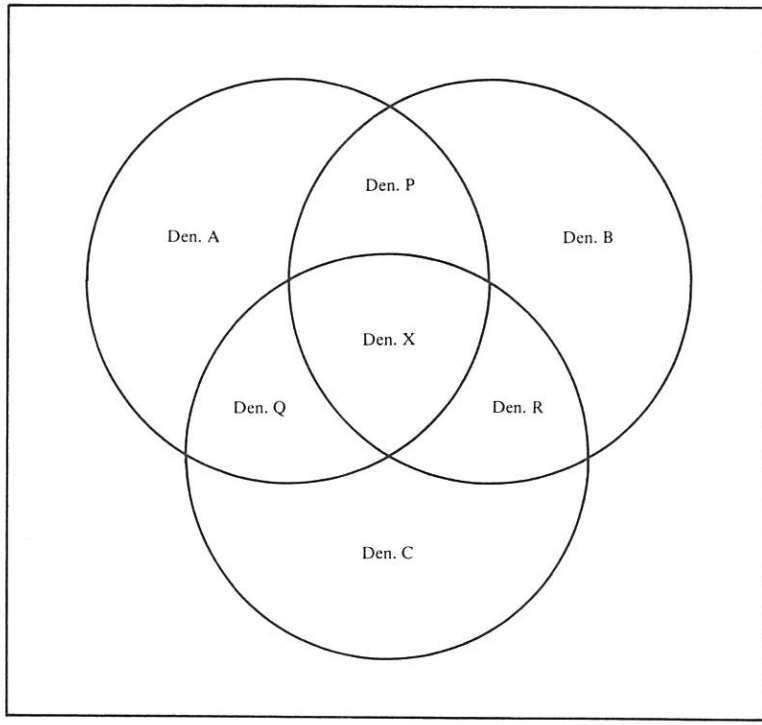
Key:

Den. A: denotation class of "yu³hsien²shih²êrh²kan³tao⁴yen⁴chi²" (to feel bored due to having nothing to do)

Den. B: denotation class of "kan³tao⁴ch'üeh¹fa²yü²lêh⁴" (to feel joyless)

Den. X: denotation class of "mên⁴ssù³ II"

The features, or rather the attributes, of "sang⁴ming⁴" can be represented in the following diagram, showing the intersection of the denotation classes of the three direct hyperonyms of "sang⁴ming⁴":



Key:

Den. A: denotation class of "tsai^{4}jên^{2}shên^{1}shang^{0}fa^{1}shêng^{0}pu^{2}hsing^{4}" (to suffer injury to life or limb /of humans/)

Den. B: denotation class of "ou^{3}jan^{2}fa^{1}shêng^{0}pu^{2}hsing^{4}" synonym "ch'u^{1}shih^{4}" (to suffer injury to life or limb by misadventure)

Den. C: denotation class of "ssŭ^{3}tiao^{4}" (to die)

Den. P: denotation class of "jên^{2}ch'u^{1}shih^{4}" synonym "tsai^{4}jên^{2}shên^{1} shang^{0}ou^{3}jan^{2}fa^{1}shêng^{0}pu^{2}hsing^{4}" (to suffer injury to life or limb by misadventure /of humans/)

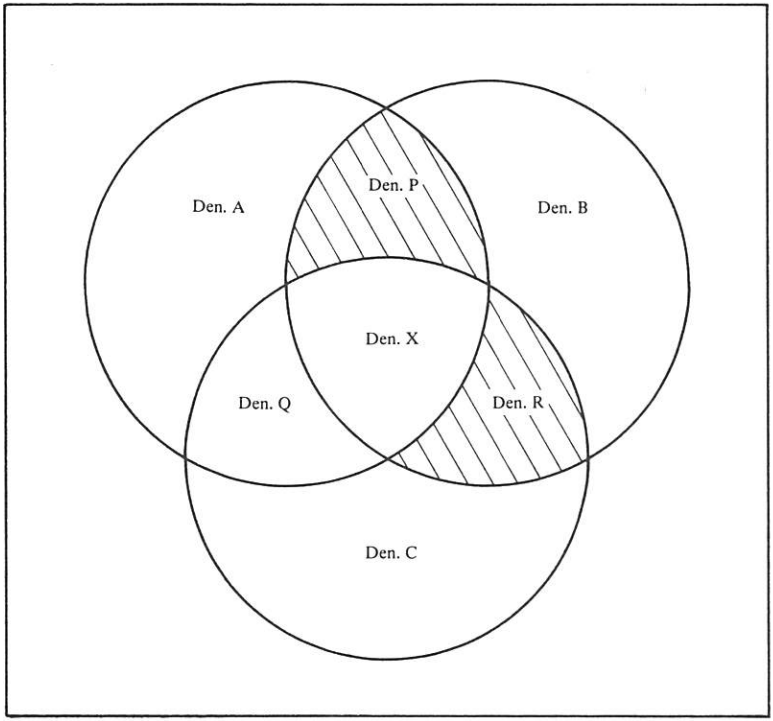
Den. Q: denotation class of "ch'ü^{4}shih^{4}" (to die /of humans/)

Den. R: denotation class of "ou^{3}jan^{2}ssŭ^{3}tiao^{4}" (to die by misadventure)

Den. X: denotation class of "sang^{4}ming^{4}" synonym "jên^{2}ou^{3}jan^{2}ssŭ^{3} tiao^{4}" (to die by misadventure /of humans/).

The signs whose denotation classes are represented by Den. A, B and C are not *direct* hyperonyms of "sang^{4}ming^{4}", but direct hyperonyms of the three direct hyperonyms of "sang^{4}ming^{4}".

The direct attributes of "tzŭ⁴pi⁴" (to commit suicide successfully) and its synonyms show an interesting case of intersection of denotation classes. They will be represented in the following diagram, in which the shaded areas indicate *empty* classes.



Key:

Den. A: denotation class of "sha¹" (to make an attempt at killing /successfully or unsuccessfully/)

Den. B: denotation class of "ssŭ³tiao⁴" (to die). N.B. In the case of suicide we have an intersection between the denotation class of "to kill" and "to die".

Den. C: denotation class of "tzŭ⁴hai⁴" (to injure oneself /deliberately/)

Den. P: the intersection of the denotation classes of "sha¹" and "ssŭ³ tiao⁴" is properly included in that of "tzŭ⁴sha¹". Therefore class P is *empty*.

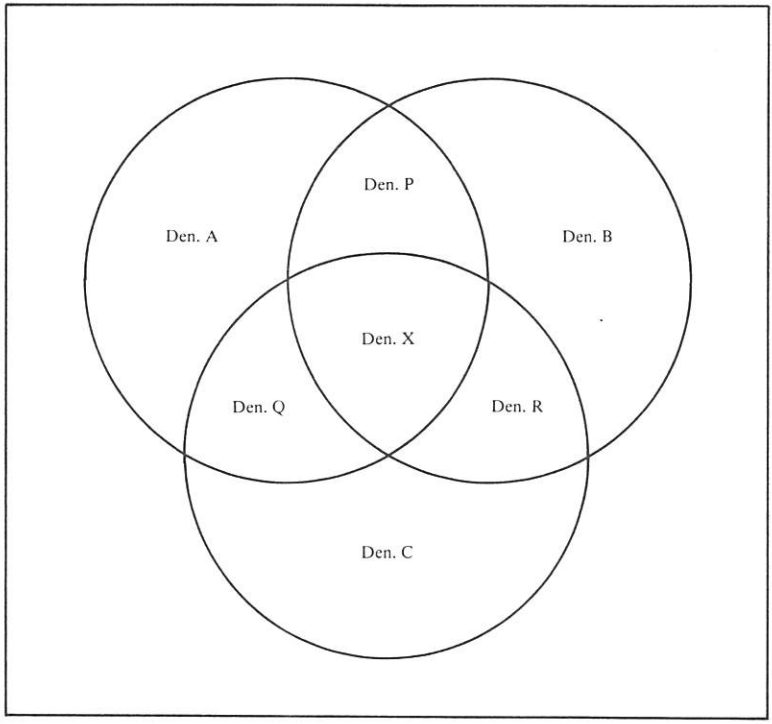
Den. R: the intersection of the denotation classes of "ssŭ³tiao⁴" and

"tzŭ^{4}hai^{4}" is properly included in that of "tzŭ^{4}sha^{1}". Therefore the class R is *empty*.

Den. Q: denotation class of "tzŭ^{4}sha^{1}" (to attempt suicide /successfully or not/)

Den. X: denotation class of "tzŭ^{4}pi^{4}" (to commit suicide /successfully/)

The intersection of denotation class producing the denotation class of "chan^{4}ssŭ^{3}" and its synonyms can be represented in the following diagram:



Key:

Den A: denotation class of "chün^{1}jên^{2}ch'u^{1}shih^{4}" (a soldier suffering injury to life or limb by misadventure)

Den B: denotation class of "ch'ü^{4}shih^{4}" (to die /of humans/)

Den C: denotation class of "yu^{2}yü^{2}ta^{3}chang^{4}êrh^{2}ch'u^{1}shih^{4}" (to suffer injury to life and limb by misadventure as a result of fighting)

Den. P: denotation class of "chün¹jên²sang⁴ming⁴" (a soldier dying by misadventure)

Den. Q: denotation class of "chün¹jên²yu²yü²ta³chang⁴ch'u¹shih⁴" (a soldier suffering injury to life or limb by misadventure in combat)

Den. R: denotation class of "yu²yü²ta³chang⁴êrh²sang⁴ming⁴" (to lose one's life by misadventure in combat /of humans/).

Den. X: denotation class of "chan⁴ssŭ³" and its synonyms.

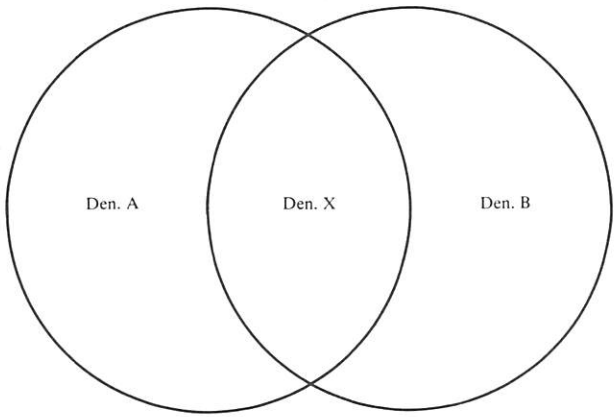
In the case of utterances belonging to the form class {"/diau¹ Sie⁴/"} we distinguish between three (orthographically not distinguishable) signs, which will appear as homonyms in the description. These homonyms may be set up by separate hypotheses because the resulting hypotheses are not invalidated by the Denotational Theorems.

(*a*) The denotation classes of "tiao¹hsieh⁴ I", "tiao¹hsieh⁴ II" and "tiao¹hsieh⁴ III" *do not intersect.*

(*b*) The three signs have *no direct attribute* (no semantic feature) *in common* between any pair of them.

The latter fact can be illustrated by representing the intersection of denotation classes producing the denotation class of each of the signs in three separate diagrams.

I



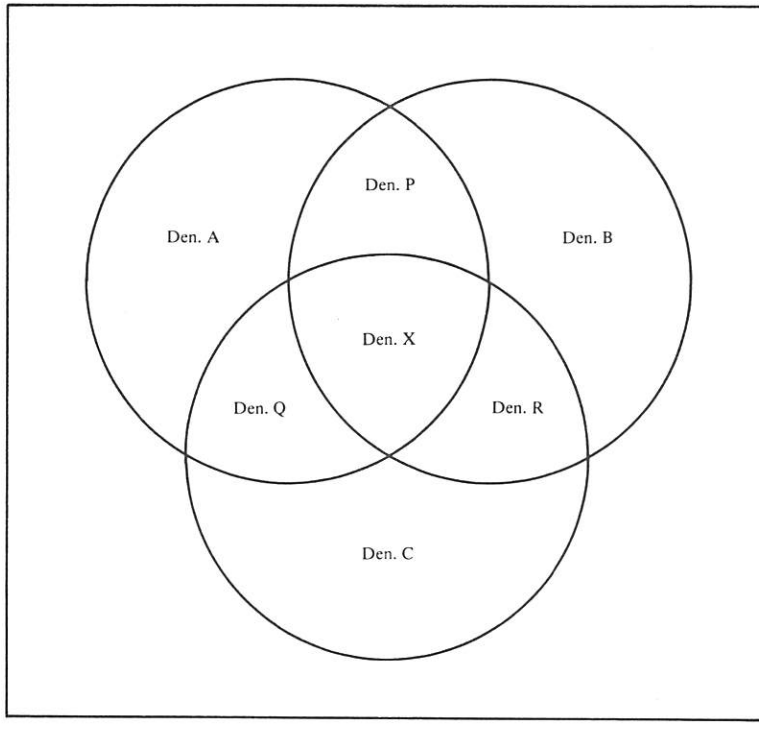
Key:

Den. A: denotation class of "ssŭ³tiao⁴" (to die)

Den. B: denotation class of "k'u¹wei¹" (to wither)

Den. X: denotation class of "tiao¹hsieh⁴ I" (to wither and die /of plants/)

II



Key:

Den. A: denotation class of "ssŭ^{3}tiao^{4}" (to die)

Den. B: denotation class of "tsai^{4}jên^{2}shên^{1}shang^{0}fa^{1}shêng^{0}pu^{2}hsing^{4}" (to suffer injury to life or limb /of humans/)

Den. C: denotation class of "nien^{2}ch'ing^{1}êrh^{2}fa^{1}shêng^{0}pu^{2}hsing^{4}" (to suffer injury to life or limb while young)

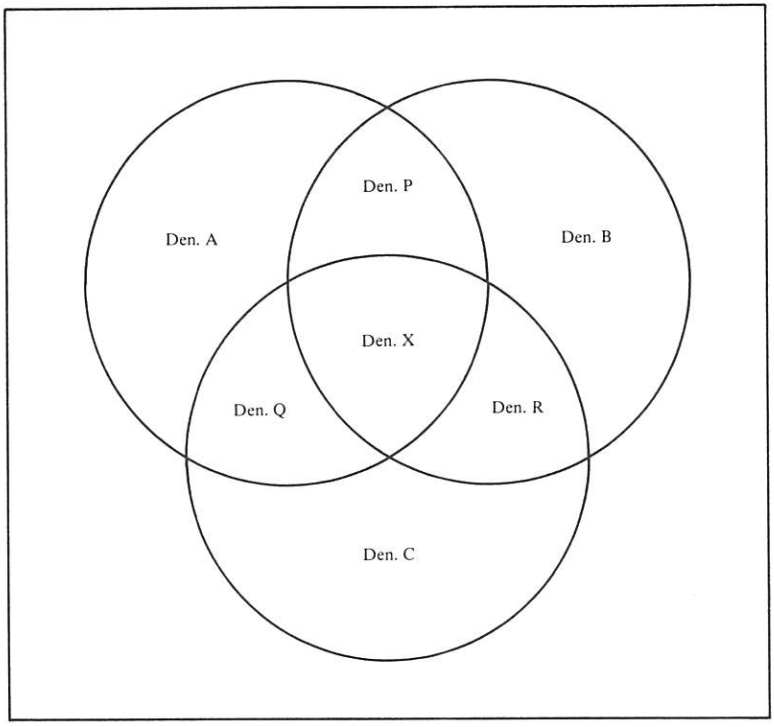
Den. P: denotation class of "ch'ü^{4}shih^{4}" (to die /of humans/)

Den. Q: denotation class of "nein^{2}ch'ing^{1}êrh^{2}ssŭ^{3}tiao^{4}" (to die young)

Den. R: denotation class of "nien^{2}ch'ing^{1}jên^{2}shên^{1}shang^{0}fa^{1}shêng^{0} pu^{2}hsing^{4}" (to suffer injury to life or limb in one's youth /of humans/)

Den. X: denotation class of "tiao^{1}hsieh^{4} II" (to die in the flower of one's youth)

III



Key:

Den. A: denotation class of "lao³ch'ü⁴" (to grow old)

Den. B: denotation class of "nü³jên²fa¹shêng⁰shih⁴ch'ing⁰" (something happens to a woman)

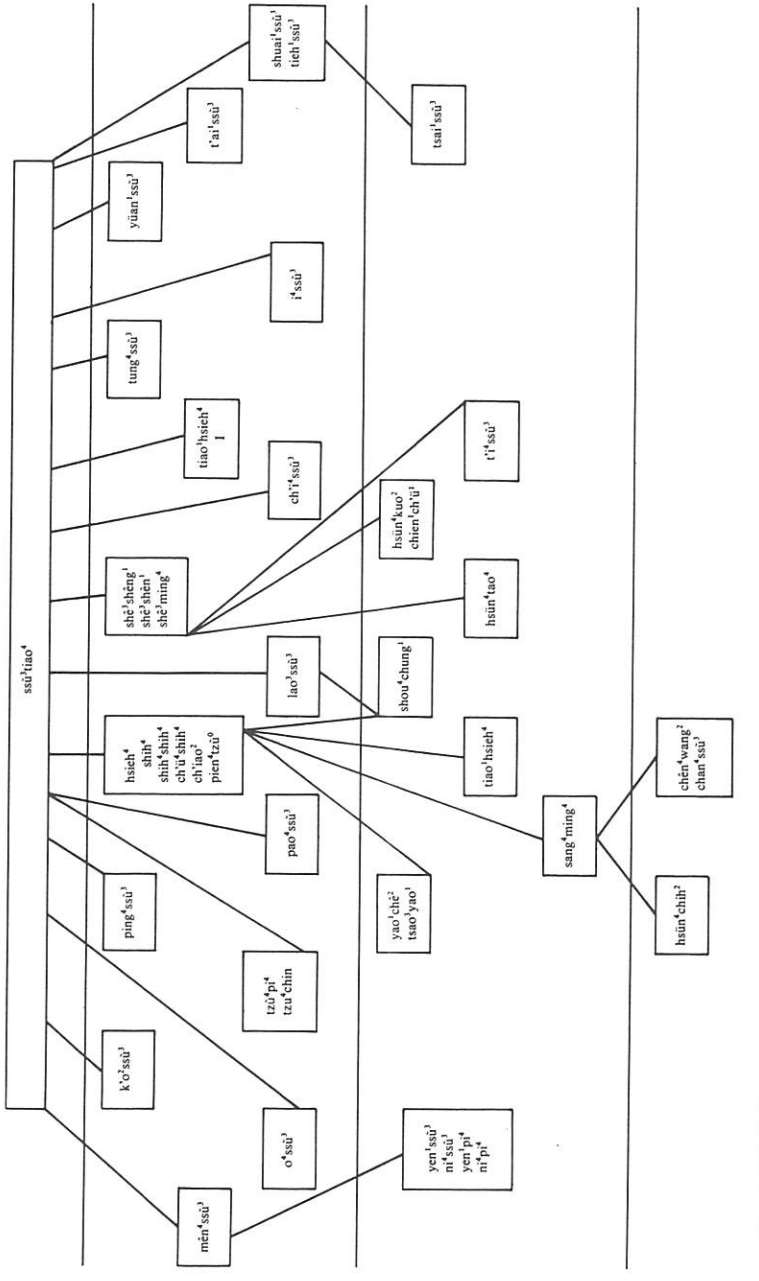
Den. C: denotation class of "mei³li⁴hsiao¹shih¹" (to lose one's beauty)

Den. P: denotation class of "nü³jên²lao³ch'ü⁴" (to grow old /of women/)

Den. Q: denotation class of "lao³ch'ü⁴êrh²mei³li⁴hsiao¹shih¹" (to lose one's beauty with age)

Den. R: denotation class of "nü³jên²tê⁰mei³li⁴hsiao¹shih¹" (to lose one's beauty/of women/)

Den. X: denotation class of "tiao¹hsieh⁴ III" (beauty fades with age/ of women/)


ssŭ⁴tiao⁴
shuai¹ssŭ¹ tieh²ssŭ³
tsai¹ssŭ³
t'ai¹ssŭ³
yüan²ssŭ³
i⁴ssŭ³
tung⁴ssŭ³
tiao⁴hsieh⁴ I
ch'i⁴ssŭ³
she³shêng¹ she³shên² she³ming⁴
hsün⁴kuo³ chien⁴ch'ü³
t'i²ssŭ³
hsün⁴tao⁴
lao³ssŭ³
shou³chung¹
hsieh⁴ shih⁴ shih⁴shih⁴ ch'ü³shih⁴ ch'iao³ pien⁴tzŭ⁻⁰
tiao⁴hsieh⁴
pao³ssŭ³
sang⁴ming⁴
chên⁴wang² chan⁴ssŭ³
ping²ssŭ³
yao⁴chê² tsao³yao⁴
hsün⁴chih²
tzŭ⁴pi⁴ tzu⁴chin
k'o³ssŭ³
o⁴ssŭ³
yen²ssŭ³ ni³ssŭ³ yen²pi⁴ ni³pi⁴
mên²ssŭ³

As a result of the explicit establishment of the semantic features of the inventory of signs belonging to the 'field' of "ssŭ³tiao⁴" this inventory can be charted as a system. The hierarchic nature of the system representing the inventory on page 178 arises from the fact that all the signs appearing there are hyponyms of "ssŭ³tiao⁴", and that some of the signs are in turn hyperonyms of other signs in the inventory. A single line relates a hyperonym with its direct hyponym, which is placed one step below the former in the hierarchy. It must be remembered that the diagram represents only the relations of hyperonym-hyponym *within* the inventory. Thus it is a complete representation only of the limited system into which the inventory can be ordered. As well as hyperonyms within the system represented, each hyponym of "ssŭ³tiao⁴" may well have hyperonyms that are outside the system. These hyperonyms, however, do not appear on the diagram for they are not items in the limited inventory in question. Thus for instance "mên⁴ssŭ³" (to die of suffocation) is shown as related by direct hyperonym-hyponym relation to only one item (namely the sign "ssŭ³tiao⁴" itself), whereas the statement of the features of "mên⁴ssu³" clearly implies that it has *two* direct hyperonyms. Of these two direct hyperonyms of "mên⁴ssŭ³", only one is actually present in the inventory of signs belonging to the field of "ssŭ³tiao⁴". Consequently, only that direct hyperonym is represented in the diagram.

As far as the whole of the inventory of Chinese is concerned the sign "yüan¹ssŭ³" (to be executed on the basis of a false accusation) is *not* in fact a direct hyponym of "ssŭ³tiao⁴", as is suggested by the diagram. It is a direct hyponym of "pei³ch'u³ssŭ³" (to be executed), which in turn is a hyponym of "ssŭ³tiao⁴". However, as the sign "pei³ch'u³ssŭ³" does not appear in the inventory (because it is a syntagm), "yüan¹ssŭ³" will be represented, as far as the limited system is concerned, as a direct hyponym of "ssŭ³tiao⁴".

II

Hyponyms of "tsou³lu⁴" ("to go on foot")

In selecting the "field" of "ssŭ³tiao⁴" I was largely motivated by a desire to demonstrate that my semantic theory is applicable not only to "substantives" (as denotational theories are wont to be), but also to "verbs", that is words denoting classes of denotata whose members are not objects but processes or actions. In the same hope of demonstrating the applicability of the theory to "verbs", and also of presenting "fields" where the "subdivisions" in Chinese are made in a fairly strikingly different way from the ones made in English, I have collected material from several informants on the "field" of "tsou³lu⁴" ("to go on foot").

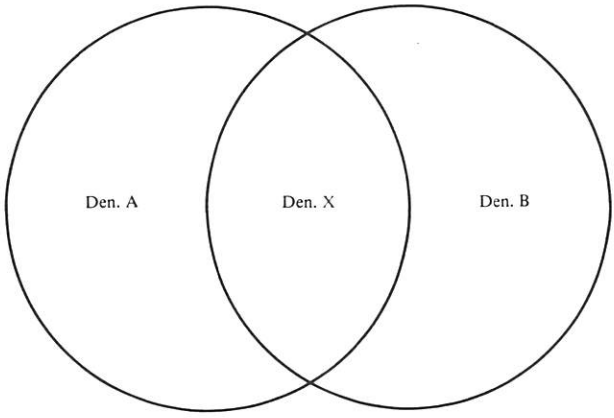
Conditions for membership in the inventory below:

(*a*) all signs in the inventory must by hyponyms of "tsou³lu⁴"
(*b*) all signs in the inventory must be *words*.

Inventory

(1) Members of the form class {"/Sian²guaŋ⁴/"} and no other utterances constitute the sign "hsien²kuang⁴" with the semantic features *tsou³lu⁴* and *sui²pien⁴tsou³i⁰tsou³*.

Remarks: The sign "hsien²kuang⁴" can be rendered into English by "to walk around at leisure" (somewhat the flavour of French "flâner"). Its semantic features can be rendered by "to go on foot" and "to go around at leisure". The intersection of the denotation classes of the two direct hyperonyms of "hsien²kuang⁴" produces the denotation class of the sign "hsien²kuang⁴", as represented below.



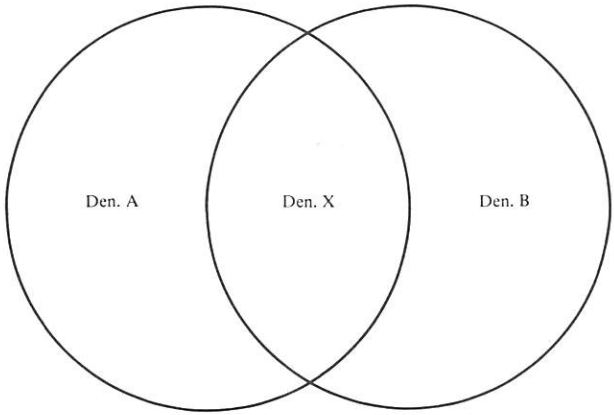
Key:

Den. X: denotation class of "hsien²kuang⁴"
Den. A: denotation class of "tsou³lu⁴"
Den. B: denotation class of "sui²pien⁴tsou³i⁰tsou³"

The sign "sui²pien⁴tsou³i⁰tsou³" is regarded as a hyperonym (and not a synonym) of "hsien²kuang⁴" on the basis of the acceptance, by my informants, of "sui²pien⁴tsou³i⁰tsou³" being capable of denoting circumstances in which the "action is *not* performed *on foot*". See for instance, "t'a¹tso⁴ch'ê¹tzŭ⁰sui²pien⁴tsou³i⁰tsou³" ("he went around at leisure in some vehicle").

(2) Members of the form class {"/huan³bu⁴/"} and no other utterances constitute the sign "huan³pu⁴", with the semantic features *tsou³lu⁴* and *huan³man⁴tsou³*.

Remarks: The sign "huan³pu⁴" can be rendered into English by "to walk slowly" and its features, respectively, by "to go on foot" and "to go slowly". The denotation class of "huan³pu⁴" can be represented as the intersection of the denotation classes of its direct hyperonyms, as follows:



Key:

Den. A: denotation class of "tsou^{3}lu^{4}"
Den. B: denotation class of "huan^{3}man^{4}tsou^{3}"
Den. X: denotation class of "huan^{3}pu^{4}"

As in the previous entry, and also in what follows, the sign "tsou^{3}" is taken to include all actions of "to go", not only those involving going on foot.

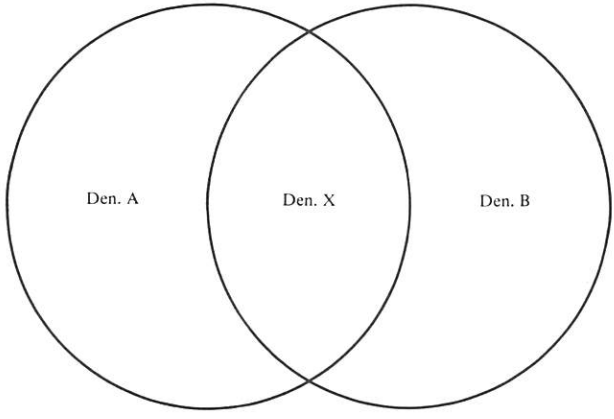
(3) Members of the form class {"/Sy^{2}Siŋ^{2}/"} and no other utterances constitute the sign "hsü^{2}hsing^{2}", with the semantic features *tsou^{3}lu^{4}* and *huan^{3}man^{4}tsou^{3}*.

Remarks: The sign "hsü^{2}hsing^{2}" being a synonym of the sign "huan^{3}pu^{4}", we need not say more than that, what goes for the previous entry, goes for the present one also.

(4) A subclass of the form class {"/Zi^{2}Siŋ^{2}/"} and no other utterances constitute the sign "chi^{2}hsing^{2}", with the semantic features *tsou^{3}lu^{4}* and *tsou^{3}tê^{0}k'uai^{4}*.

Remarks: The sign "chi^{2}hsing^{2}" can be rendered in English by "to walk fast" and its respective features by "to go on foot" and "to go fast". The "discovery", through what my informants told me, of utterances also belonging to the form class {"/Zi^{2}Siŋ^{2}/"}, but not to the sign "chi^{2}hsing^{2}", implies that "chi^{2}hsing^{2}" has at least one homonym, namely "chi^{2}hsing^{2} I" ("immediately"). This latter sign is such that it may be set up as a homonym of "chi^{2}hsing^{2}", since the denotation classes of the two signs "chi^{2}hsing^{2}" and "chi^{2}hsing^{2} I" do not intersect, and they don't have a direct attribute in common. "chi^{2} hsing^{2} I" does not have the semantic features *tsou^{3}lu^{4}* or *tsou^{3} tê^{0}k'uai^{4}*.

The following diagram represents the denotation class of "chi² hsing²":



Key:

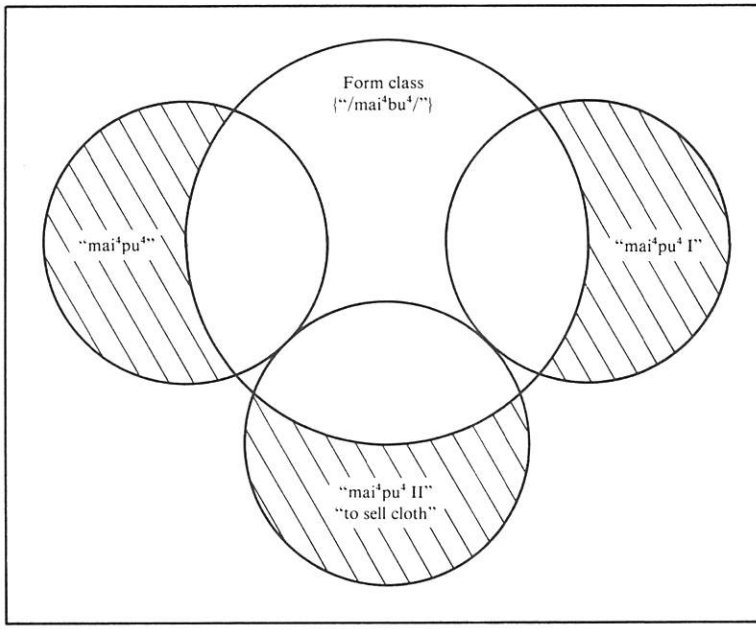
Den. A: denotation class of "tsou³lu⁴"
Den. B: denotation class of "tsou³tê⁰k'uai⁴"
Den. X: denotation class of "chi²hsing²"

(5) A subclass of the form class {"/mai⁴bu⁴/"} and no other utterances constitute the sign "mai⁴pu⁴", with the features *tsou³lu⁴* and *ta⁴pu⁴yu³ching¹shên²tê⁰yün⁴tung⁴*.

Remarks: The sign "mai⁴pu⁴" can be rendered by "stride ahead with large steps", and its respective features by "to move energetically with large steps" and "to walk". Contrary to how it might appear, "ta⁴pu⁴yu³ching¹shên²tê⁰yün⁴tung⁴" ("to move energetically with large steps") does not necessarily imply that the movement is that of walking; running, dancing, jumping etc. may well be included in the denotation of this sign.

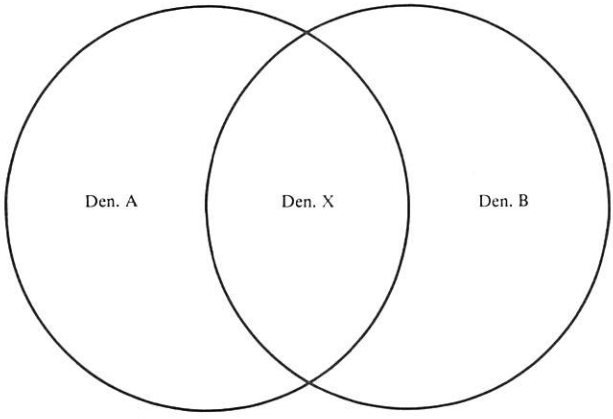
As the type of hypothesis indicates, the sign "mai⁴pu⁴" has at least one homonym. This case of homonymy is sufficiently interesting to merit discussion, as it does not immediately spring to mind, because one of the homonyms we wish to set up is not orthographically† distinct from "mai⁴pu⁴". A third homonym "mai⁴pu⁴ II" ("to sell cloth") is straightforward enough, but I shall demonstrate the validity of setting up the homonym "mai⁴pu⁴ I" ("to develop rapidly"). The three-fold homonymy of signs whose utterances belong to the form class {"/mai⁴bu⁴/"} can be represented in the following diagram:

† I.e. in terms of ideograms.



The signs "mai⁴pu⁴" and "mai⁴pu⁴ I" can be set up in such a way that their respective denotation classes are disjunct (denoting "striding ahead (in a literal sense of walking)", and "quick progress or development in some field", respectively). Thereby the requirement of D.T.II (see Part One, Chapter VII) is satisfied. If the requirement of D.T.II (see Part One, Chapter VII) is also satisfied, that is to say if the denotation classes of the two signs in question have no direct attribute in common, then "mai⁴pu⁴" and "mai⁴pu⁴ I" may be regarded as *bona fide* homonyms.

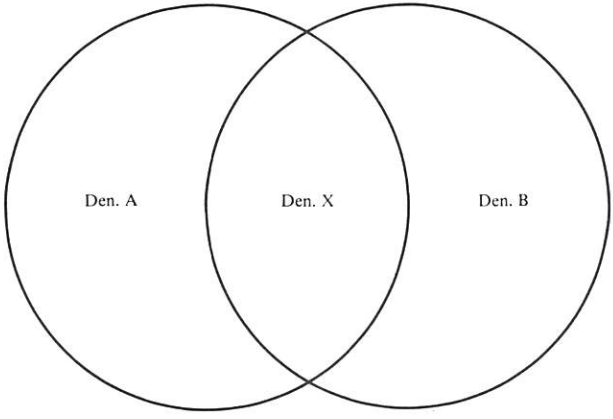
The direct attributes of "mai⁴pu⁴" can be shown in the following diagram representing the intersection of the denotation classes of the direct hyperonyms of "mai⁴pu⁴", which produces the denotation class of "mai⁴pu⁴".



Key:

Den. A: denotation class of "tsou³lu⁴"
Den. B: denotation class of "ta⁴pu⁴yu³ching¹shên²tê⁰yün⁴tung⁴"
Den. X: denotation class of "mai⁴pu⁴"

That the denotation class of "mai⁴pu⁴" has no direct attributes in common with that of "mai⁴pu⁴ I", can be seen from the following diagram in which the denotation class of "mai⁴pu⁴ I" is shown to be a product of the denotation classes of signs which do not appear on the diagram directly above.



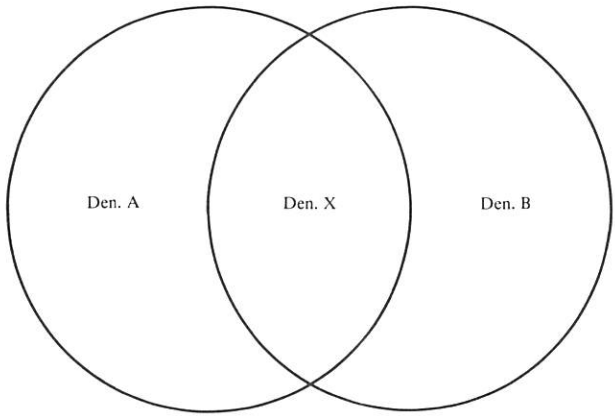
Key:

Den. A: denotation class of "fa¹chan³" (to develop)
Den. B: denotation class of "chin⁴pu⁴tê⁰hên³k'uai⁴" (make rapid progress)
Den. X: denotation class of "chin⁴pu⁴ I"

(6) Members of the form class {"/Liu^{1}da^{2}/"} and no other utterances constitute the sign "liu^{1}ta^{2}", with the semantic features *tsou^{3} lu^{4}* and *wei^{4}lê^{0}hsiao^{1}ch'ien^{3}êrh^{2}yün^{4}tung^{4}*.

Remarks: The sign "liu^{1}ta^{2}" can be roughly rendered into English by "to go for a constitutional", "to take a walk for pleasure or for the exercise". The semantic features are "to walk" and "to take exercise as a pastime" (the renderings here are particularly rough). My attention has not been called to any homonyms of "liu^{1}ta^{2}" so I am proceeding on the assumption that there are none.

The denotation classes of the direct hyperonyms of "liu^{1}ta^{2}" are represented by the following diagram:



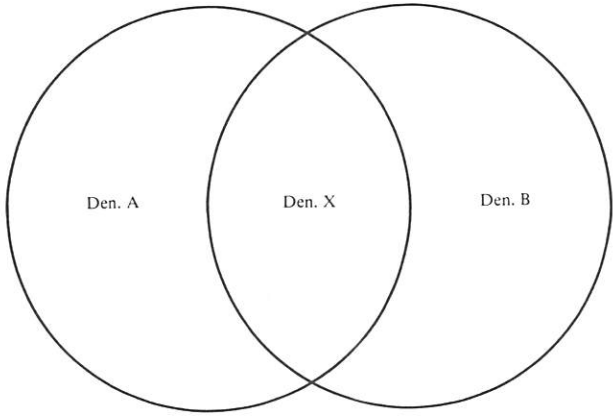
Key:

Den. A: denotation class of "tsou^{3}lu^{4}"
Den. B: denotation class of "wei^{4}lê^{0}hsiao^{1}ch'ien^{3}êrh^{2}yün^{4}tung^{4}"
Den. X: denotation class of "liu^{1}ta^{2}"

(7) Members of the form class {"/nie^{4}Siŋ^{2}/"} and no other utterances constitute the sign "nieh^{4}hsing^{2}", with the semantic features *tsou^{3}lu^{4}* and *i^{3}chih^{3}chien^{1}yün^{4}tung^{4}*.

Remarks: The sign "nieh^{4}hsing^{2}", which my informants considered not to be very colloquial, can be rendered by the English phrase "to walk on tiptoes". Its features can be rendered by "to walk" and "to move on tiptoes". (Not all movement on tiptoes is necessarily one of "walking", the case of ballet-dancers on their *pointes* should be sufficient to indicate this.)

The denotation class of "nieh⁴hsing²" can be represented as the intersection of the denotation classes of "tsou³lu⁴" and "i³chih³chien¹ yün⁴tung⁴".



Key:

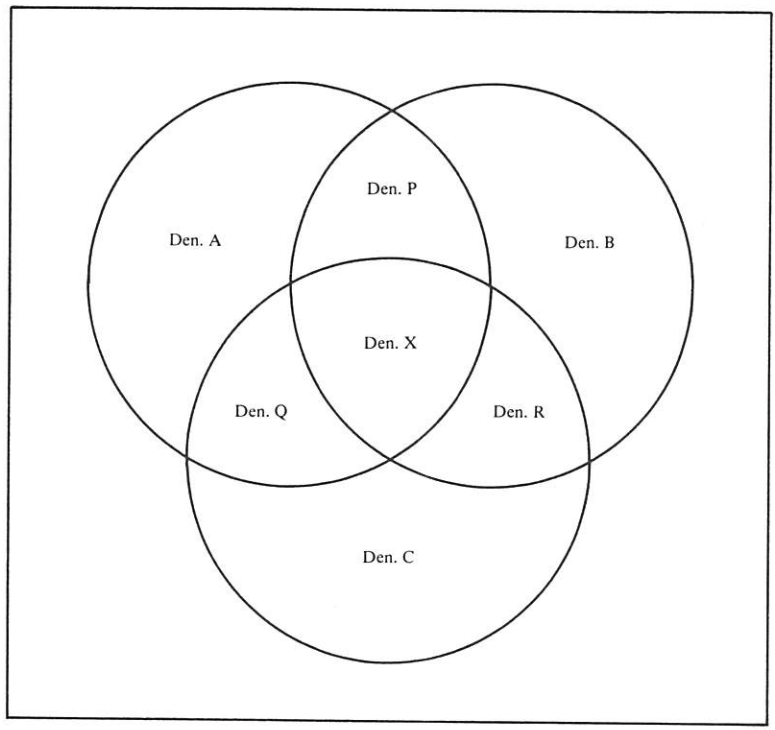
Den. A: denotation class of "tsou³lu⁴"
Den. B: denotation class of "i³chih³chien¹yün⁴tung⁴"
Den. X: denotation class of "nieh⁴hsing²"

The hypothesis was made on the assumption that there are no homonyms of "nieh⁴hsing²". The inclusion of this sign presented a somewhat arbitrary decision, as my informants, although acquainted with this sign, seemed to feel that it was 'not *very* colloquial".

(8) Members of the form class {"/uei²bu⁴/"} and no other utterances constitute the sign "wei²pu⁴", with the semantic features *hsü² hsing²*, *hsiao³pu⁴êrh²tsou³* and *hsiao³pu⁴hsü²man⁴tê⁰yün⁴tung⁴*.

Remarks: The sign "wei²pu⁴b" can be roughly rendered into English by "to walk slowly with small steps; to walk slowly and mincingly". Its features are "to walk slowly", "to walk with small steps" and "to move with slow mincing steps". (The latter may denote circumstances in which *walking* is not involved, but, say, dancing is.)

My informants have been divided on the question of whether "wei²pu⁴" is a part of the colloquial language, but I have included it here on the basis of the fact that they all seemed to be familiar with it.



Key:

Den. A: denotation class of "hsü^{2}man^{4}tê^{0}yün^{4}tung^{4}" (to move slowly)

Den. B: denotation class of "hsiao^{3}pu^{4}êrh^{2}yün^{4}tung^{4}" (to move with small steps)

Den. C: denotation class of "tsou^{3}lu^{4}" (to walk)

Den. P: denotation class of "hsiao^{3}pu^{4}hsü^{2}man^{4}tê^{0}yün^{4}tung^{4}" (to move slowly with small steps)

Den. Q: denotation class of "hsü^{2}hsing^{2}" (to walk slowly)

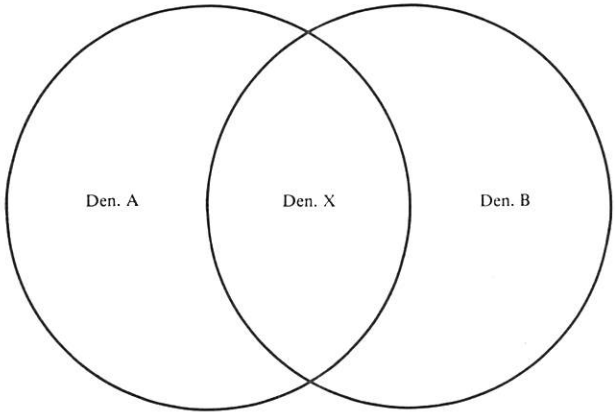
Den. R: denotation class of "hsiao^{3}pu^{4}êrh^{2}tsou^{3}" (to walk with small steps)

Den. X: denotation class of "wei^{2}pu^{4}" (to walk slowly and mincingly)

(9) Members of the form class {"/ba^{2}še^{4}/"} and no other utterances constitute the sign "pa^{2}shê^{4}", with the semantic features *tsou^{3} lu^{4}* and *tsou^{3}k'un^{4}nan^{2}tê^{0}lu^{4}*.

Remarks: The sign "pa²shê⁴" can be rendered into English by "to trudge along on foot", and its respective features by "to walk" and "to travel a difficult route".

The following diagram represents the denotation classes of "pa² shê⁴" and its two direct hyperonyms:



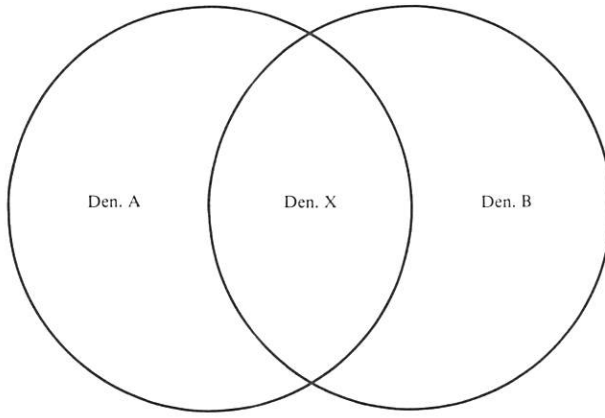
Key:

Den. A: denotation class of "tsou³lu⁴"
Den. B: denotation class of "tsou³k'un⁴nan²tê⁰lu⁴"
Den. X: denotation class of "pa²shê⁴"

N.B. According to my informants "tsou³k'un⁴nan²tê⁰lu⁴" does not only denote "walking on foot" ("t'a¹k'ai¹ch'ê¹tsou³k'un⁴nan²tê⁰lu⁴" = He drives along a difficult route).

(10) Members of the form class {"/laŋ⁴Ciaŋ¹/"} and no other utterances constitute the sign "lang⁴ch'iang¹", with the semantic features *tsou³lu⁴* and *yün⁴tung⁴tê⁰pu⁴wên³*.

Remarks: The sign "lang⁴ch'iang¹" can be rendered into English by "to walk unsteadily", and its respective features by "to walk" and "to move unsteadily". I did not come across any utterances belonging to this form class which are not members also of this sign, and consequently, I have made the hypothesis on the assumption that "lang⁴ch'iang¹" has no homonyms. The diagram below represents the intersection of the denotation classes of direct hyperonyms of "lang⁴ch'iang¹", which is identical to the denotation class of the sign "lang⁴ch'iang¹".



Key:

Den. A: denotation class of "tsou^{3}lu^{4}"
Den. B: denotation class of "yün^{4}tung^{4}tê^{0}pu^{4}wên^{3}"
Den. X: denotation class of "lang^{4}ch'iang^{1}"

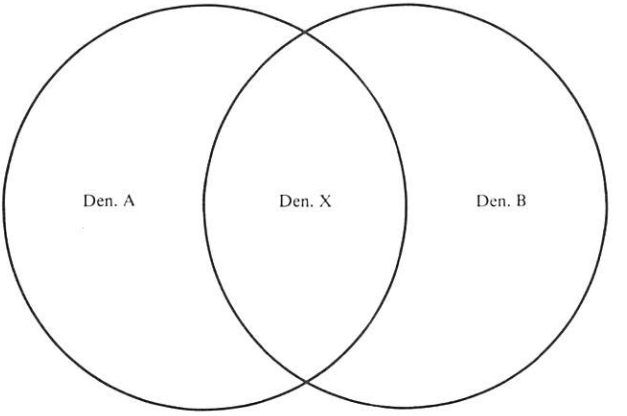
(11) Members of the form class {"/Lianŋ^{4}Cianŋ^{1}/"} and no other utterances constitute the sign "liang^{4}ch'iang^{1}", with the semantic features *tsou^{3}lu^{4}* and *yün^{4}tung^{4}tê^{0}pu^{4}wên^{3}*.

Remarks: The sign "liang^{4}ch'iang^{1}" is denotationally equivalent to the sign "lang^{4}ch'iang^{1}" above, and has the same English rendering and an identical set of semantic features. The two signs "lang^{4}ch'iang^{1}" and "liang^{4}ch'iang^{1}" are synonyms in my description. In the present case, there is no contextual variance between members of {"/laŋ^{4}Cianŋ^{1}/"} and {"/Lianŋ^{4}Cianŋ^{1}/"}, but free choice as to realizing a member of one class or the other in any given grammatical context. In such cases of completely free variance (as for instance between members of {"/ạiðṛ/"} and of {"/ịRðṛ/"} in English), two synonymous signs are set up to account for the members of the two form classes, respectively.

The synonymy of "lang^{4}ch'iang^{1}" and "liang^{4}ch'iang^{1}" is shown up in the diagram below where the intersection of the denotation classes of the same two signs represents the denotation class of "liang^{4}ch'iang^{1}" as of the sign "lang^{4}ch'iang^{1}".

The free variance in speech of utterances belonging to "lang^{4}ch'iang^{1}" and "liang^{4}ch'iang^{1}" is felt to be underlined by the fact that in the ordinary orthography, the two signs are not differentiated, but correspond to one and the same pair of ideograms. That they must

be kept discrete signs in the description, is because only thus can we account both for the difference of phonological form (/laŋ⁴Ciaŋ¹/ and /Liaŋ⁴Ciaŋ¹/) and for the denotational equivalence of the classes {"/laŋ⁴Ciaŋ¹/"} and {"/Liaŋ⁴Ciaŋ¹/"}.



Key:

Den. A: denotation class of "tsou³lu⁴"
Den. B: denotation class of "yün⁴tung⁴tê⁰pu⁴wên³"
Den. X: denotation class of "lang⁴ch'iang¹" and "liang⁴ch'iang¹", showing the synonymy relation between the former and the latter.

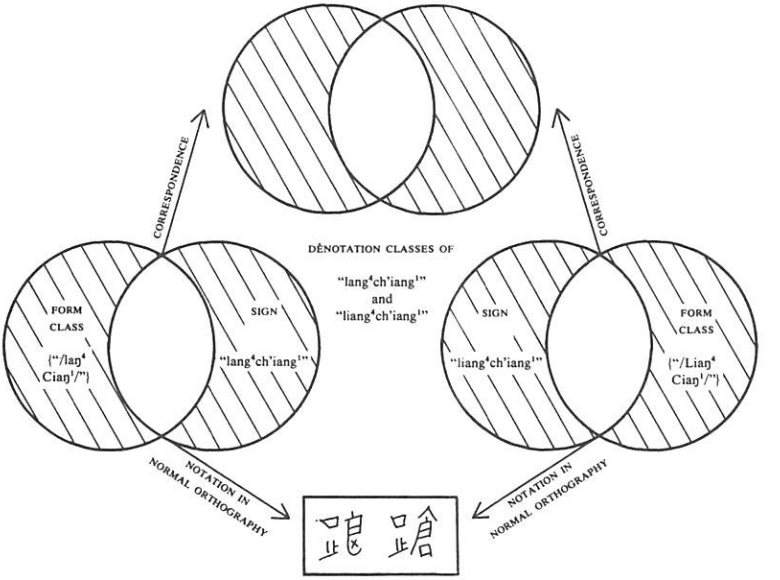


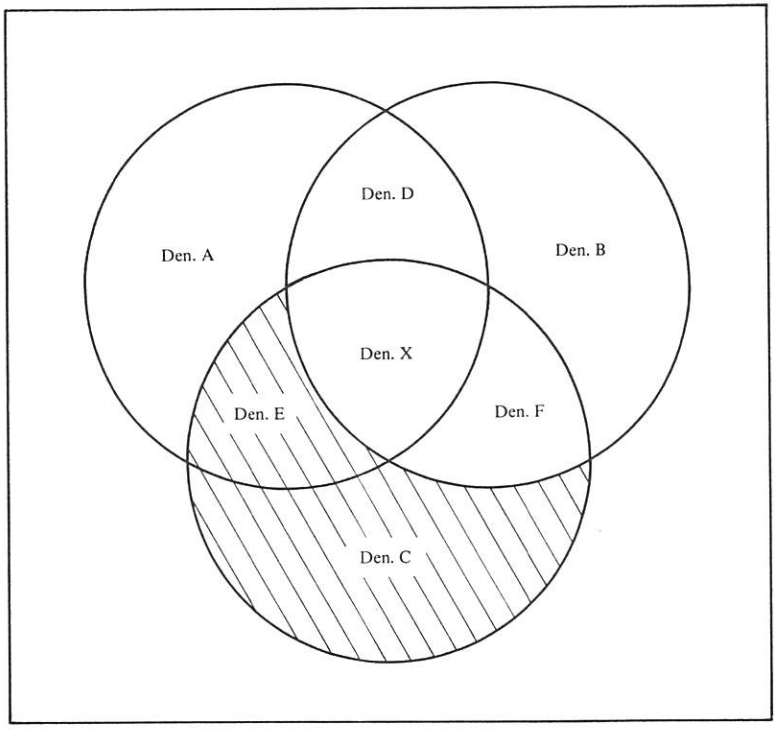
Diagram representing various dimensions of relations between the signs "lang^{4}ch'iang^{1}" and "liang^{4}ch'iang^{1}", including their relations to characters in normal orthography.

(12) Members of the form class {"/bue^{3}Siŋ^{2}/"} and no other utterances constitute the sign "po^{3}hsing^{2}", with the semantic features *lang^{4}ch'iang^{1}* and *(pu^{4}wên^{3})hao^{3}hsiang^{4}chiao^{3}yu^{3}mao^{2}ping^{4}tê^{0} yang^{4}tzŭ^{0}yün^{4}tung^{4}*.

Remarks: The sign "po^{3}hsing^{2}" can be rendered into English by "to limp" ("to walk in a way indicative of injury or defect of one's leg(s)"). Its respective features are "to walk unsteadily" and "to move in an unsteady way indicative of injury or defect of one's leg(s)". This latter feature is cumbersome, even in Chinese, but it is in full accordance with the information gathered from native speakers. In intuitive terms, the denotation class of "lang^{4}ch'iang^{1}" is subdivided neatly between those of "po^{3}hsing^{2}" and "man^{2}shan^{1}" (cf. item 13) in such a way that all cases of "walking unevenly and unsteadily" which are judged to be "indicative of leg-injuries or defects" belong to the denotation class of "po^{3}hsing^{2}", whereas all other instances of members of the denotation class of "lang^{4}ch'iang^{1}" are assignable, not to "po^{3}hsing^{2}" but to "man^{2}shan^{1}". (Also see the remarks under "man^{2}shan^{1}".)

The diagram below represents the intersection of denotation classes which produce the denotation class of "po^{3}hsing^{2}". The shaded area indicates an empty class. That the class in question is empty, is due to the fact that all members of the denotation class of "(pu^{4}wên^{3})hao^{3}hsiang^{4}chiao^{3}yu^{3}mao^{2}ping^{4}tê^{0}yang^{4}tzŭ^{0}yün^{4}tung^{4}" ("to move in an unsteady way indicative of injury or defect of one's leg(s)"), must also be members of the denotation class of "yün^{4}tung^{4} tê^{0}pu^{4}wên^{3}" ("to move in an unsteady way"), though not *vice versa*.

In the feature *(pu^{4}wên^{3})hao^{3}hsiang^{4}chiao^{3}yu^{3}mao^{2}ping^{4}tê^{0}yang^{4} tzŭ^{0}yün^{4}tung^{4}* "pu^{4}wên^{3}" is in brackets, as it is in fact redundant, in the sense that its presence or absence in the syntagm does not affect the denotation of that syntagm as a sign. Inclusion of "pu^{4}wên^{3}" however does not constitute an anomalous syntagm. [Compare "sink (down)" *versus* "exit (out)".]



Key:

Den. A: denotation class of "tsou³lu⁴" (to walk)

Den. B: denotation class of "yün⁴tung⁴tê⁰pu⁴wên³" (to move unsteadily)

Den. C: denotation class of "hao³hsiang⁴chiao³yu³mao²ping⁴tê⁰ yang⁴tzŭ⁰yün⁴tung⁴" (to move in a way indicative of injury or defect of one's leg(s))

Den. D: denotation class of "lang⁴ch'iang¹" (to walk unsteadily)

Den. E: "accidental" gap (no corresponding sign)

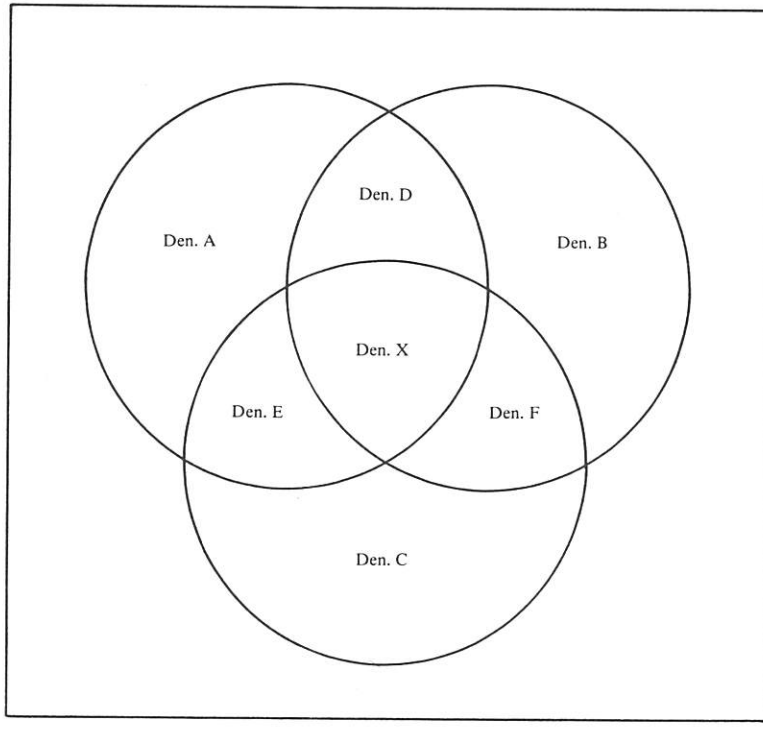
Den. F: denotation class of "(pu⁴wên³)hao³hsiang⁴chiao³yu³mao² ping⁴tê⁰yang⁴tzŭ⁰yün⁴tung⁴" (to move /unsteadily/ in a way indicative of injury or defect of one's leg(s))

Den. X: denotation class of "po³hsing²" (to walk /unsteadily/ in a way indicative of injury or defect of one's leg(s))

Note that the fact of the proper inclusion of Den. C in Den. B occasions a gap whereby the possibility of the sign "po³hsing²" having three features (as one would logically expect) is removed.

(13) Members of the form class "/man^{2}šan^{1}/" and no other utterances constitute the sign "man^{2}shan^{1}", with the semantic features *lang^{4}ch'iang^{1}*, *chiao^{3}mei^{2}mao^{2}ping^{4}tê^{0}yang^{4}tzŭ^{0}tsou^{3}lu^{4}*, and *pu^{4}wên^{3}êrh^{2}chiao^{3}mei^{2}mao^{2}ping^{4}tê^{0}yang^{4}tzŭ^{0}yün^{4}tung^{4}*.

Remarks: The sign "man^{2}shan^{1}" can be rendered in English by "to walk unsteadily for reasons other than injury or defect of one's leg(s)". Its first feature, rendered as "to walk unsteadily", is a feature it has in common with "po^{2}hsing^{2}" (see previous entry). The other two features can be rendered as "to walk in a manner not indicative of injury or defect of one's leg(s)" and "to move unsteadily, but without giving the impression of injury or defect of one's leg(s)", respectively. The denotation class of "lang^{4}ch'iang^{1}" is divided up between the two non-overlapping classes of "po^{2}hsing^{2}" and "man^{2}shan^{1}".



Key:

Den. A: denotation class of "tsou^{3}lu^{4}"
Den. B: denotation class of "yün^{4}tung^{4}tê^{0}pu^{4}wên^{3}"

Den. C: denotation class of "chiao³mei²mao²ping⁴tê⁰yang⁴tzŭ⁰yün⁴ tung⁴"

Den. D: denotation class of "lang⁴ch'iang¹"

Den. E: denotation class of "chiao³mei²mao²ping⁴tê⁰yang⁴tzŭ⁰tsou³ lu⁴"

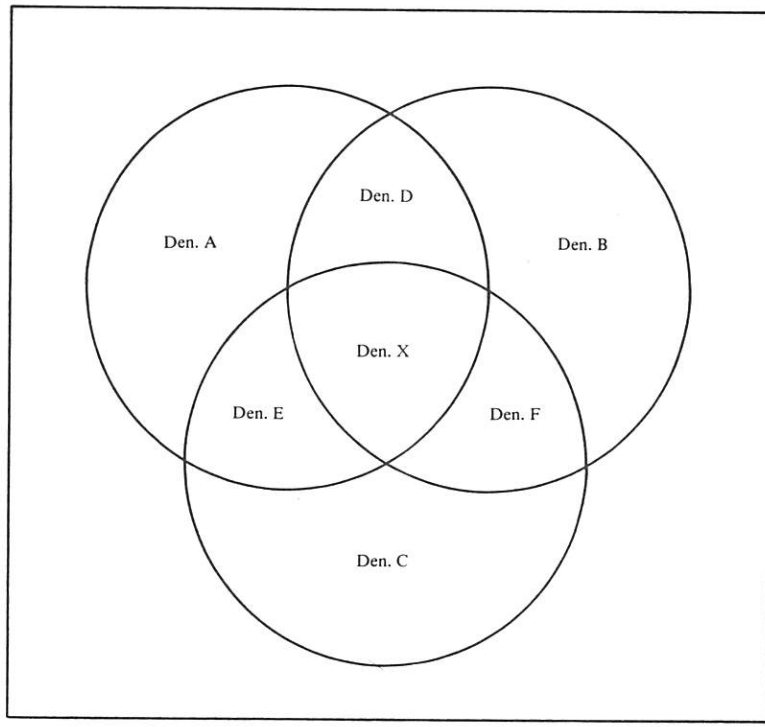
Den. F: denotation class of "pu⁴wên³êrh²chiao³mei²mao²ping⁴tê⁰ yang⁴tzŭ⁰yün⁴tung⁴"

Den. X: denotation class of "man²shan¹" (to walk unsteadily for reasons other than defect or injury of one's leg(s); e.g. tiredness, dizziness, drunkenness etc.)

(14) Members of the form class {"/man⁴bu⁴/"} and no other utterances constitute the sign "man⁴pu⁴", with the semantic features *hsü²hsing²*, *hsien²kuang⁴* and *man⁴man⁰tê⁰sui²pien⁴tsou³i⁰ tsou³*.

Remarks: The sign "man⁴pu⁴" can be rendered in English by "to walk around slowly at leisure", and its respective features by "to walk slowly", "to walk around at leisure" and "to go around slowly at leisure".

Important to keep in mind, is the fact that "to go around slowly at leisure" is not a synonym of "to walk around slowly at leisure", for the action in the former is not necessarily performed on foot, whereas in the latter it is. Also for distinguishing "hsien²kuang⁴" from "liu¹ ta²" as well as "man⁴pu⁴" from "san⁴pu⁴" (see next entry), we must remember that a clear distinction is drawn between "doing something at leisure" ("sui²pien⁴") and "doing something for pleasure" ("wei⁴ lê⁰hsiao¹ch'ien³").

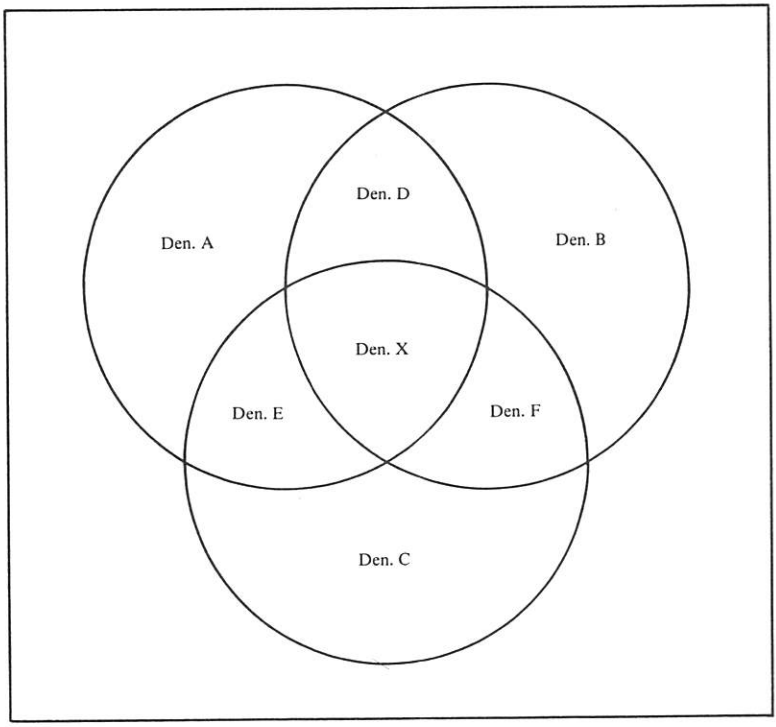


Key:

Den. A: denotation class of "tsou^{3}lu^{4}" (to walk)
Den. B: denotation class of "huan^{3}man^{4}tsou^{3}" (to go slowly)
Den. C: denotation class of "sui^{2}pien^{4}tsou^{3}i^{0}tsou^{3}" (to go around at leisure)
Den. D: denotation class of "hsü^{2}hsing^{2}" (to walk slowly)
Den. E: denotation class of "hsien^{2}kuang^{4}" (to walk around at leisure)
Den. F: denotation class of "man^{4}man^{0}tê^{0}sui^{2}pien^{4}tsou^{3}i^{0}tsou^{3}" (to go around slowly at leisure)
Den. X: denotation class of "man^{4}pu^{4}" (to walk around slowly at leisure)

(15) Members of the form class {"/san^{4}bu^{4}/"} and no other utterances constitute the sign "san^{4}pu^{4}" with the semantic features *hsü^{2}hsing^{2}*, *liu^{1}ta^{2}* and *man^{4}man^{0}tê^{0}wei^{4}lê^{0}hsiao^{3}ch'ien^{3}êrh^{2} tsou^{3}*.

Remarks: The sign "san⁴pu⁴" can be rendered into English by "to walk slowly and for the sake of pleasure", and the respective features by "to walk slowly", "to walk for pleasure" and "to go slowly and for the sake of pleasure". A synonym of "san⁴pu⁴" would be the syntagm "man⁴man⁰tê⁰liu¹ta²", a result which surprised me when I was working with informants. I had not expected that the idea of "walking slowly" was an essential feature of "san⁴pu⁴" (and had initially thought of "liu¹ta²" and "san⁴pu⁴" as synonyms). My informants, however, while being ready to accept "t'a¹ch'u¹ch'ü⁴liu¹ta², tsou³lu⁴ tsou³tê⁰hên³k'uai⁴" ("he went out for a pleasure-walk, and walked very fast") were quite unwilling to accept "t'a¹ch'u¹ch'ü⁴san⁴pu⁴, tsou³lu⁴tsou³tê⁰hên³k'uai⁴". Consequently, I concluded that whereas "liu¹ta²" is indeterminate as to the speed of the walking "san⁴pu⁴" is specifically used to denote walking at a slow speed.



Key:

Den. A: denotation class of "tsou³lu⁴" (to walk)
Den. B: denotation class of "huan³man⁴tsou³" (to go slowly)

Den. C: denotation class of "wei^{4}lê^{0}hsiao^{1}ch'ien^{3}êrh^{2}yün^{4}tung^4" (to take exercise as a pastime)
Den. D: denotation class of "hsü^{2}hsing^2" (to walk slowly)
Den. E: denotation class of "liu^{1}ta^2" (to walk for pleasure)
Den. F: denotation class of "man^{4}man^{0}wei^{4}lê^{0}hsiao^{1}ch'ien^{3}êrh^{2}tsou^3" (to go slowly and for pleasure)
Den. X: denotation class of "san^{4}pu^4" (to walk slowly and for pleasure)

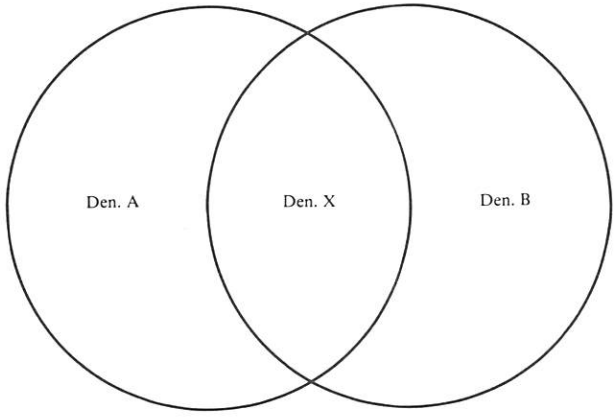
(16) Members of the form class {"/Sian^{2}du^4/"} and no other utterances constitute the sign "hsien^{2}tu^4" with the semantic features *tsou^{3}lu^4* and *tsou^{3}lai^{2}tsou^{3}ch'ü^4*.

Remarks: The sign "hsien^{2}tu^4" can be rendered into English by "to walk up and down" and its respective features by "to walk" and "to go back and forth". A synonym of "hsien^{2}tu^4" is the syntagm "tu^{4}lai^{2}tu^{4}ch'ü^4". In what was suggested to me by my informants it appeared that they felt the addition of "tsai^{4}i^{2}ting^{4}tê^{0}k'ung^{1}chien^1 nei^4" ("within a limited space") desirable in a paraphrase of "hsien^2 tu^4", but I have not found it necessary to add this, since "walking back and forth" already clearly implies this spatial limitation.

I must add here that the second syllable, which I have transcribed as "tu^4", is, according to Mathew's Dictionary, pronounced /due^4/. As, however, my informants invariably realized /du^4/, when asked to pronounce this syllable, I have here opted for their version.

It might appear at first sight that, "tsou^{3}lai^{2}tsou^{3}ch'ü^4" is a synonym, rather than a direct hyperonym of "hsien^{2}tu^4", and that it means "to walk back and forth". This would make "tsou^{3}lai^{2}tsou^3 ch'ü^4" a synonym also of "tu^{4}lai^{2}tu^{4}ch'ü^4". This however is not the case, for both "tu^{4}lai^{2}tu^{4}ch'ü^4" and "hsien^{2}tu^4" are strictly limited to going on foot" (i.e. walking) whereas "tsou^{3}lai^{2}tsou^{3}ch'ü^4" is capable of denoting actions of "going back and forth" where "walking" is not involved. See for instance "t'a^{1}t'a^{4}tzŭ^{4}hsing^{2}ch'ê^{1}tsou^{3}lai^{2}tsou^{3}ch'ü^4" ("he rode his bicycle back and forth"). The sign "tsou^{3}lai^{2}tsou^{3}ch'ü^4" must clearly be rendered as "to go back and forth", and be treated as a hyperonym of "hsien^{2}tu^{4}b" ("to walk back and forth").

The following diagram shows the intersection of denotation classes producing the denotation class of "hsien^{2}tu^4" (and incidentally also of its synonym "tu^{4}lai^{2}tu^{4}ch'ü^4"):

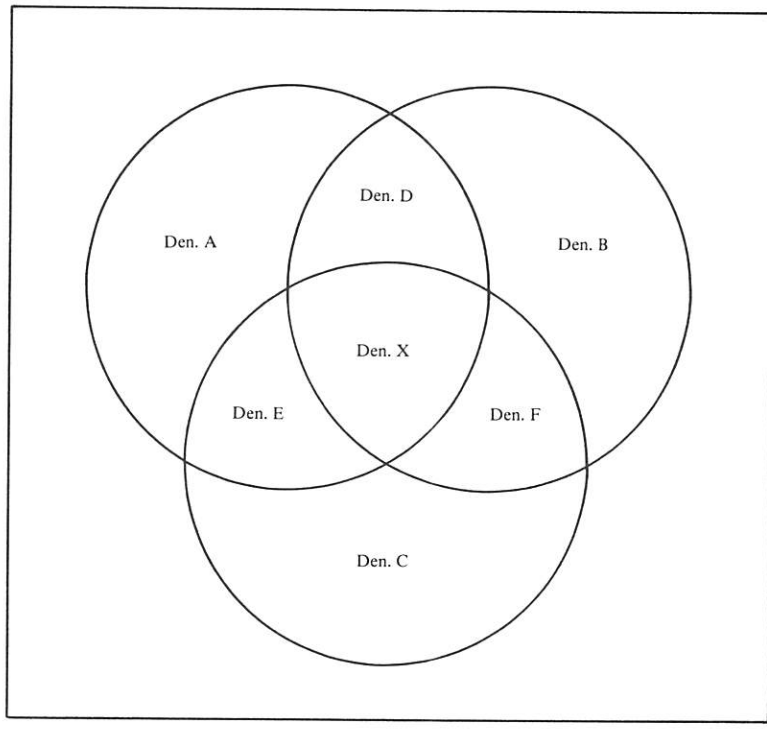


Key:

Den. A: denotation class of "tsou³lu⁴" (to walk)
Den. B: denotation class of "tsou³lai²tsou³ch'ü⁴" (to go back and forth)
Den. X: denotation class of "hsien²tu⁴" (to walk up and down)

(17) Members of the form class {"/pai¹hui²/"} and no other utterances constitute the sign "p'ai¹hui²", with the semantic features *hsü²hsing²*, *hsien²tu⁴* and *man⁴man⁰tê⁰tsou³lai²tsou³ch'ü⁴*.

Remarks: The sign "p'ai¹hui²" can be rendered into English by "to walk slowly back and forth" and its respective features by "to walk slowly", "to walk back and forth" and "to go slowly back and forth". As a label for the second feature, "tu⁴lai²tu⁴ch'ü⁴", which is a synonym of "hsien²tu⁴" could equally well have been selected. The additional "limitation" which makes the denotation class of "p'ai¹hui²" more "specific" (that is to say properly included in) than the denotation class of "hsien²tu⁴" is that of the "slowness" of the action. According to my informants "t'a¹hsien²tu⁴, tsou³lu⁴tsou³tê⁰hên³k'uai⁴" ("he walked back and forth very fast") is acceptable, whereas "t'a¹p'ai¹hui², tsou³lu⁴tsou³tê⁰hên³k'uai⁴" is not. The idea of "wandering aimlessly and at a loose end" is not an essential aspect of "p'ai¹hui²", though it might well characterize a subclass of the denotation class of the latter. However, "p'ai¹hui²" may well be appropriate in cases such as "wandering back and forth in the garden, while reading a book" ("t'a¹tsai⁴yüan²tzŭ⁰li⁰p'ai¹hui², i²pien⁴tsou³lu⁴i²pien⁴k'an⁴shu¹").



Key:

Den. A: denotation class of "tsou^{3}lu^{4}" (to walk)
Den. B: denotation class of "huan^{3}man^{4}tsou^{3}" (to go slowly)
Den. C: denotation class of "tsou^{3}lai^{2}tsou^{3}ch'ü^{4}" (to go back and forth)
Den. D: denotation class of "hsü^{2}hsing^{2}" (to walk slowly)
Den. E: denotation class of "hsien^{2}tu^{4}" or "tu^{4}lai^{2}tu^{4}ch'ü^{4}" (to walk back and forth)
Den. F: denotation class of "man^{4}man^{0}tê^{0}tsou^{3}lai^{2}tsou^{3}ch'ü^{4}" (to go slowly back and forth)
Den. X: denotation class of "p'ai^{1}hui^{2}" (to walk slowly back and forth)

Ordered according to the relations of hypero-hyponymy between its items, the whole of the foregoing inventory can be presented as a hierarchical network. Naturally, items not in the inventory are also present among the direct hyperonyms of each of the items on the

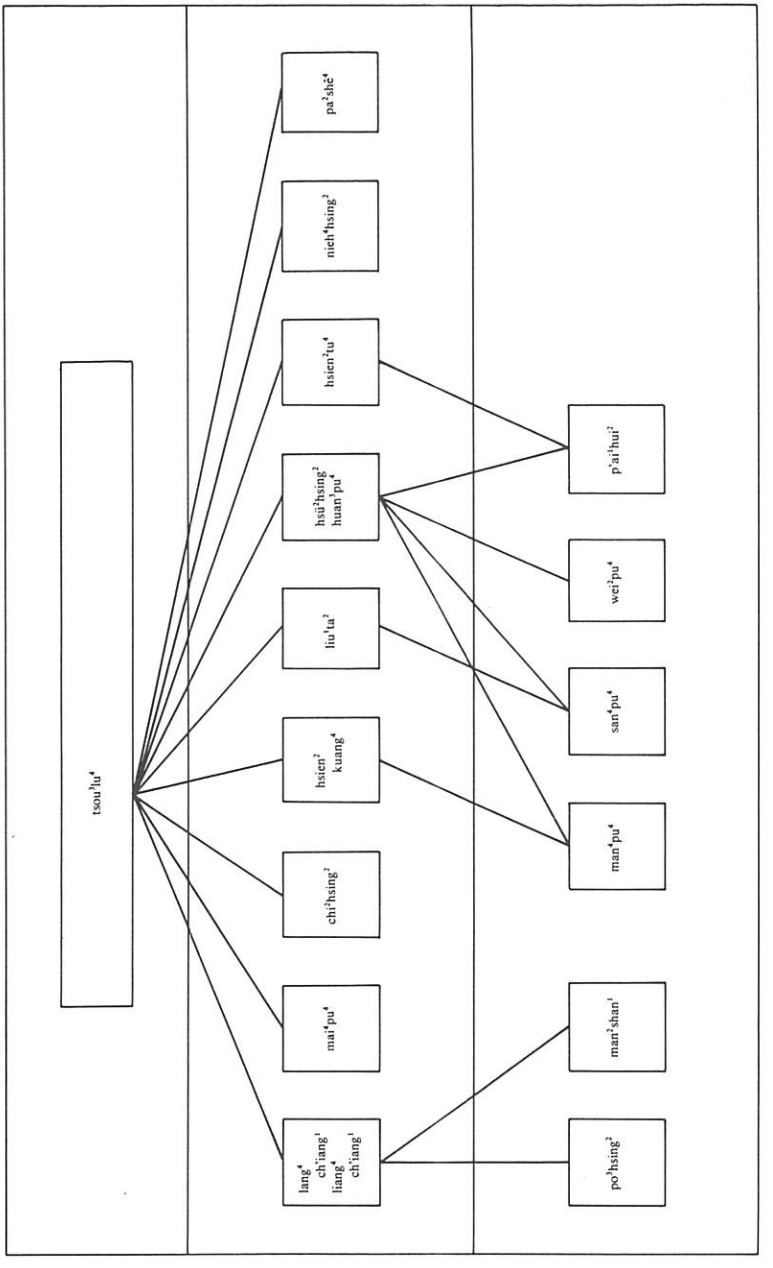

tsou³lu⁴
lang⁴ ch'iang¹ liang⁴ ch'iang¹
mai⁴pu⁴
chi²hsing²
hsien² kuang⁴
liu³ta²
hsü²hsing² huan²pu⁴
hsien²tu⁴
nieh⁴hsing²
pa²shê⁴
po²hsing²
man²shan¹
man⁴pu⁴
san⁴pu⁴
wei²pu⁴
p'ai²hui²

diagram (page 201), and consequently this diagram does not indicate all the direct hypero-hyponymy relations in which the items presented partake. It only shows those hypero-hyponymy relations which occur between items initially present in the inventory, and whose identity is set up by the identity-hypotheses in that inventory. A complete diagram would have to trace every item back through each of its direct hyperonyms, and the direct hyperonyms of those direct hyperonyms, and so on, right up to a Universal Hyperonym. Space will not allow the drawing of such a diagram, either here, or indeed anywhere else. For such a task, even if the problem of space could be solved, a team of collaborators and the use of computers would be indicated.

III

Hyponyms of "mei³li⁴" ("beautiful")

In order to demonstrate that the semantic theory put forward in the first part of this thesis is applicable to "words denoting qualities of objects", I have selected the field of "mei³li⁴" ("beautiful") for presentation. In what follows I shall be dealing with an inventory limited

(*a*) to words
(*b*) to hyponyms of the sign "mei³li⁴" ("beautiful").

The English renderings of the signs in this inventory will be particularly rough-and-ready, for not only are some of the denotational distinctions drawn in Chinese quite alien to those drawn in English, but no formal distinction is drawn in Chinese between the "predicative" (cf. Stative Verb), "attributive" (roughly "adjectival") and "substantive" (roughly "nominal") uses of words denoting qualities. Thus the word "mei³li⁴" as such is indifferent as to a choice of three renderings "to be beautiful", "beautiful" and "beauty", each of which is equally possible as a rendering. It is only in grammatical contexts that one or other of the renderings into English becomes the appropriate one: "t'a¹tê⁰t'ai⁴t'ai⁰chên¹mei³li⁴" ("his wife is truly beautiful"); "mei³li⁴(tê⁰)hai²tzŭ⁰pu⁴i²ting⁴shih⁴hao³hai²tzŭ⁰" ("a beautiful child is not necessarily a good child"); "t'a¹tê⁰mei³li⁴hao³hsiang⁴t'ao² hua¹tê⁰mei³li⁴" ("her beauty is like the beauty of a peach-blossom"). I shall, throughout, use the "attributive" (adjectival) rendering to represent in each case all three possible renderings. The rendering "beautiful" should therefore be considered as being short for "beautiful ∪ beauty ∪ to be beautiful".

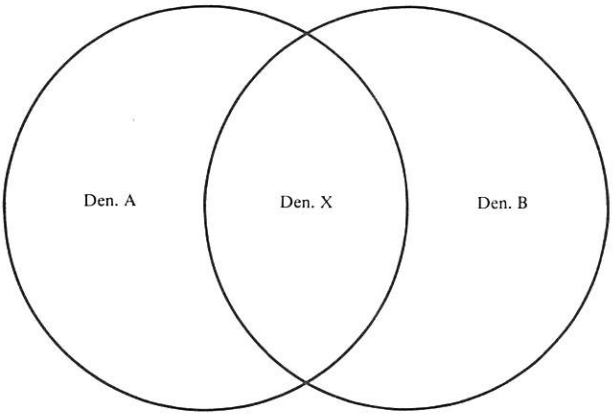
It must be remembered that the denotation classes of signs denoting qualities, have, as their members, qualities occurring in objects, but not the actual objects themselves. Whether a given object is or is not "beautiful" is a matter of opinion, but this is only a question of the relation of a quality to an object and does not affect the relation of utterances of "beautiful" to their denotata.

Inventory

(1) Members of the form class {"/Liaŋ^{4}Li^{4}/"} and no other utterances constitute the sign "liang^{4}li^{4}" with the semantic features *mei^{3}li^{4}* and *k'uang^{1}ts'ai^{3}*.

Remarks: The sign "liang^{4}li^{4}" can be rendered into English by "bright and beautiful" and its respective features by "beautiful" and "bright and colourful". I have implied in the hypothesis above that the sign "liang^{4}li^{4}" has no homonyms.

The diagram below shows the intersection of the denotation classes of the direct hyperonyms of "liang^{4}li^{4}" as being identical with the denotation class of "liang^{4}li^{4}".



Key:

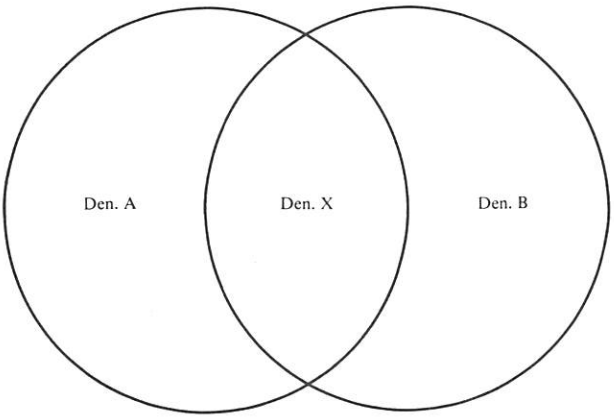
Den. A: denotation class of "mei^{3}li^{4}" (beautiful)
Den. B: denotation class of "kuang^{1}ts'ai^{3}" (bright and colourful)
Den. X: denotation class of "liang^{4}li^{4}" (bright and beautiful)

(2) A subclass of the form class {"/Ziŋ^{1}ž^{4}/"} and no other utterances constitute the sign "ching^{1}chih^{4}" with the semantic features *mei^{3}li^{4}* and *ching^{1}hsi^{4}*.

Remarks: The sign "ching^{1}chih^{4}" can be rendered into English by "dainty and beautiful (of inanimate objects)" and respective features by "beautiful" and "small and delicate (of inanimate objects)". The sign "ching^{1}chih^{4}" has at least one homonym, namely "ching^{1}chih^{4}" ("to refine").

Note that, just as the denotation class of "ch'ü⁴shih⁴", for instance, is limited to circumstances in which the dying of a human being is concerned, although the class consists of members which are "actions" (or processes), so there is no contradiction implied by the "limiting" of the denotation class of "ching¹chih⁴" to qualities that can be possessed by inanimate things. The latter denotation class has, notwithstanding, members which are qualities, and not objects.

The diagram below represents the denotation class of "ching¹chih⁴" as the intersection of the denotation classes of the two direct hyperonyms of that sign:



Key:

Den. A: denotation class of "ching⁴hsi⁴" (small and delicate /of inanimate objects/)

Den. B: denotation class of "mei³li⁴" (beautiful)

Den. X: denotation class of "ching¹chih⁴" (dainty and beautiful /of inanimate objects/)

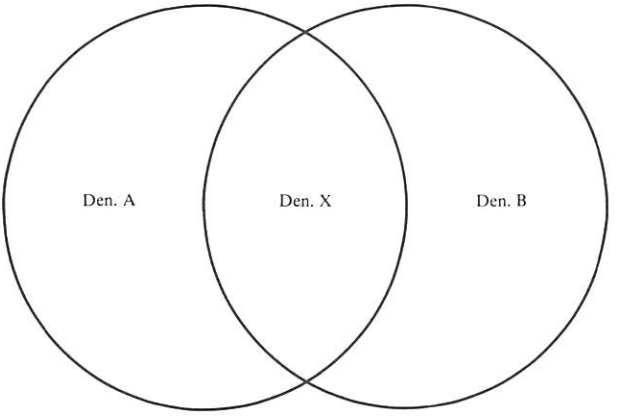
(3) Members of the form class {"/Liŋ²luŋ²/"} and no other utterances constitute the sign "ling²lung²", with the semantic features *mei³li⁴* and *hsiao³ch'iao³*.

Remarks: The sign "ling²lung²" is hard to render into English, its meaning can perhaps best be explained as a combination of "beautiful", "small and intricate", "subtly and artfully made". Of these "beautiful" renders the feature *mei³li⁴* and a combination of the other two gives an approximate rendering of the feature *hsiao³ch'iao³* (literally "small and subtly ingenious").

According to my informants, although "ling^{2}lung^2" consists mostly of members (utterances) denoting qualities of inanimate objects, it is marginally possible for utterances of this sign to denote qualities in living beings, say humans. "t'a^{1}hên^{3}ling^{2}lung^2" ("she is small and finely made like a subtle and intricate work of art"). Note that the simile is only a device of the English rendering, whereas in Chinese the particular quality described is an actual member of the denotation class of "ling^{2}lung^2", *not* of a simile "hao^{3}hsiang^{4}ling^{2}lung^2".

No utterances belonging to the form class ("/Liŋ^{2}luŋ^2/") but not to the sign "ling^{2}lung^2" have been pointed out to me by my informants, and therefore I am working on the assumption that the latter sign has no homonyms.

The diagram below represents the denotation class of "ling^{2}lung^2" as the intersection of the denotation classes of its two direct hyperonyms:



Key:

Den. A: denotation class of "mei^{3}li^4" (beautiful)

Den. B: denotation class of "hsiao^{3}ch'iao^3" (small, intricate, subtly and artfully made)

Den. X: denotation class of "ling^{2}lung^2" (small, beautifully intricate and subtle)

(4) Members of the form class {"/žuaŋ^{4}Li^4/"} and no other utterances constitute the sign "chuang^{4}li^4", with the semantic features *mei^{3}li^4* and *chuang^{4}kuan^1*.

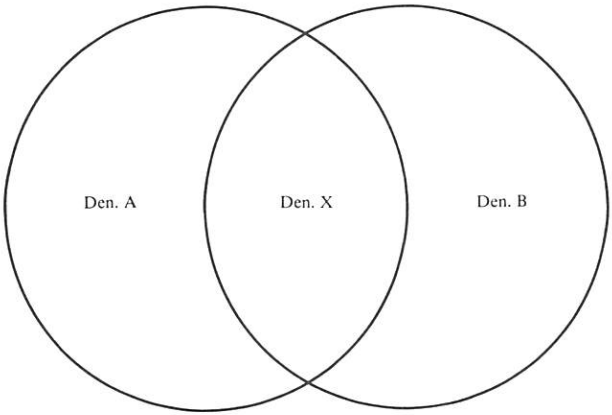
Remarks: The sign "chuang^{4}li^4" can be rendered into English by "beautiful in a powerful and imposing way (of inanimate things)". Of

the two features, the first is rendered by "beautiful" and the second by "powerful and imposing to look at (of inanimate things)". To say that something is "chuang⁴kuan¹" ("looks powerful and imposing") is not to imply that it is necessarily "mei³li⁴" ("beautiful"), and, of course, *vice versa*.

Many of my informants associated "chuang⁴li⁴" with denoting the imposing quality of buildings. This however is only a "typical" use of utterances of "chuang⁴li⁴" and is not a necessary limitation of the denotation class of that sign. Similarly in English there is a close association of "to say" with "vocal utterances", and it is only when confronted with instances such as "In his letter he says . . ." that one becomes aware of the fact that the denotation class of "to say" is not limited to "the making of vocal utterances".

On the other hand, my informants rejected the use of "chuang⁴li⁴" or of "chuang⁴kuan¹" for denoting qualities of animate beings, and I have consequently included this limitation in my rendering of both of the above signs.

The diagram below represents the denotation class of "chuang⁴li⁴" as the intersection of the denotation classes of "chuang⁴kuan¹" and "mei³li⁴".



Key:

Den. A: denotation class of "mei³li⁴" (beautiful)

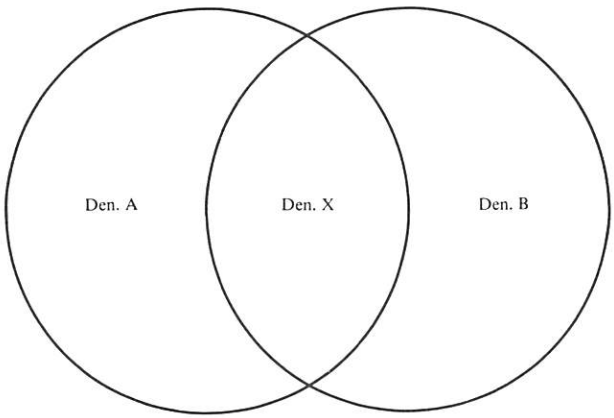
Den. B: denotation class of "chuang⁴kuan¹" (powerful and imposing to look at /of inanimate things/)

Den. X: denotation class of "chuang⁴li⁴" (beautiful in a powerful and imposing way /of inanimate things/)

(5) Members of the form class {"/hua^{2}Li^4/"} and no other utterances constitute the sign "hua^{2}li^4", with the semantic features *mei^3 li^4* and *kao^{1}kuei^4*.

Remarks: The sign "hua^{2}li^4" can be explained in English as meaning "beautiful and costly (of inanimate things)". The second feature can be rendered by "costly, valuable" (see Mathew's Dictionary). (It should be noted that I have used dictionary definitions only when they appear to be in complete agreement with the result of my work with informants.) Of the above two renderings "costly" is the less ambiguous one, for in English, too, its denotation class is limited to qualities of inanimate things, whereas this is not the case with "valuable".

In the diagram below the denotation class of "hua^{2}li^4" is shown as the intersection of the denotation classes of its direct hyperonyms:



Key:

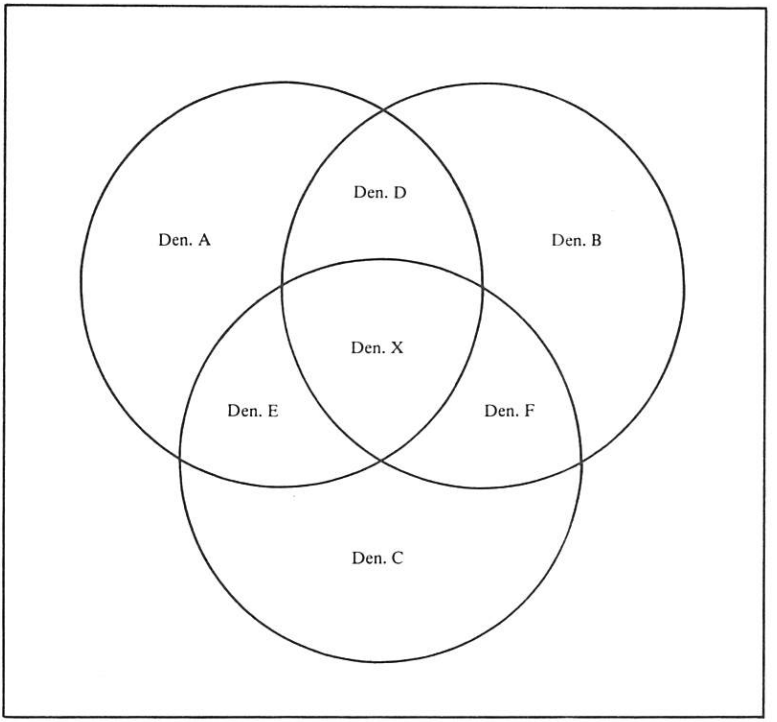
Den. A: denotation class of "mei^{3}li^4" (beautiful)
Den. B: denotation class of "kao^{1}kuei^4" (costly, lavish)
Den. C: denotation class of "hua^{2}li^4" (beautiful and costly/of inanimate things/)

(6) Members of the form class {"/hau^{2}hua^2/"} and no other utterances constitute the sign "hao^{2}hua^2" with the semantic features *hau^{2}li^4*, *chuang^{4}li^4* and *kao^{1}kuei^{4}êrh^{2}chuang^{4}kuan^1*.

Remarks: The sign "hao^{2}hua^2" can be rendered into English, in a rough way, by "beautiful in a powerful, imposing and lavish way (of inanimate things)" and its respective features by "beautiful and costly (of inanimate things)", "beautiful in a powerful and imposing

way (of inanimate things)" and "lavish and imposing in appearance (of inanimate things)".

The third feature has a label derived from a hyperonym of "hau² hua²" which hyperonym is a syntagm and not a word. It is very well possible that this syntagm has an exact synonym which *is* a word. I have however been unable to discover a word synonymous with "kao¹kuei⁴êrh²chuang⁴kuan¹" and consequently must use this syntagm as a label for the feature in question, pending the identification of a synonym of this syntagm.



Key:

Den. A: denotation class of "mei³li⁴" (beautiful)
Den. B: denotation class of "kao¹kuei⁴" (costly)
Den. C: denotation class of "chuang⁴kuan¹" (powerful and imposing in appearance)
Den. D: denotation class of "hua²li⁴" (beautiful and lavish)

Den. E: denotation class of "chuang^{4}li^{4}" (beautiful, powerful and imposing in appearance)

Den. F: denotation class of "kao^{1}kuei^{4}êrh^{2}chuang^{4}kuan^{1}" (costly, powerful and imposing in appearance)

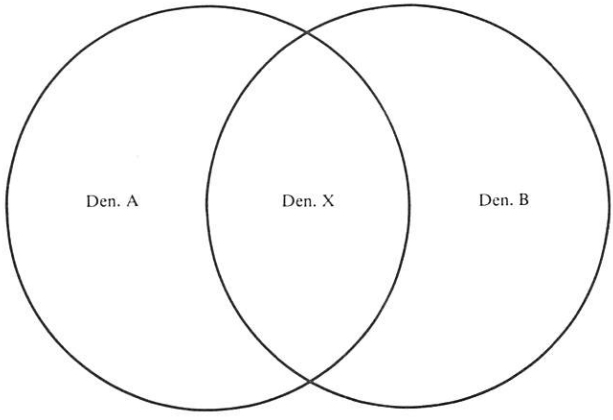
Den. X: denotation class of "hao^{2}hua^{2}" (beautiful in a powerful, imposing and lavish way)

(7) Members of the form class {"/cuŋ^{1}luŋ^{2}/"} and no other utterances constitute the sign "ts'ung^{1}lung^{2}" with the semantic features *mei^{3}li^{4}* and *mao^{4}shêng^{4}*.

Remarks: The sign "ts'ung^{1}lung^{2}" can be rendered into English by "lush (of vegetation)", and its respective features by "beautiful" and "luxuriant (of vegetation)".

The sign "ts'ung^{1}lung^{2}", according to my informants, is not very commonly used in colloquial Chinese, since however my informants were in fact familiar with it, I have included it in the inventory. I have treated it as a hyponym of "mei^{3}li^{4}" on the basis of the fact that whereas the quality of "beauty" ("mei^{3}li^{4}") does not imply the quality of "being lush" ("ts'ung^{1}ling^{2}"), there is implication the other way round. My informants uniformly rejected the proposition that vegetation could be "ts'ung^{1}lung^{2}k'o^{3}shih^{4}pu^{4}mei^{3}li^{4}" ("lush but not beautiful"), while they admitted that it could be "mao^{4}shêng^{4}k'o^{3}shih^{4} pu^{2}mei^{3}li^{4}" ("luxuriant or abundant in growth but not beautiful").

The following diagram represents the intersection of the denotation classes of the direct hyperonyms of "ts'ung^{1}lung^{2}". The class formed by this intersection is co-extensive with the denotation class of "ts'ung^{1}lung^{2}".



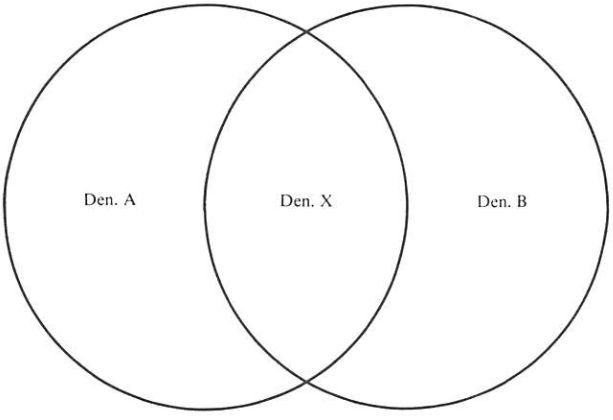
Keys:

Den. A: denotation class of "mei³li⁴" (beautiful)
Den. BM denotation class of "mao⁴shêng⁴" (abundant or luxuriant/of vegetation/)
Den. X: denotation class of "ts'ung¹lung²" (lush/of vegetation/)

(8) Members of the form class {"/Ciŋ¹Siu⁴/"} and no other utterances constitute the sign "ch'ing¹hsiu⁴" with the semantic features *mei³li⁴* and *jung²mao⁴hao³k'an⁴*.

Remarks: The sign "ch'ing¹hsiu⁴" can be rendered in English by "having a beautiful face; fine-featured" and its respective features by "beautiful" and "having a pleasant-looking face". Since according to my informants "having a pleasant-looking face" ("jung²mao⁴hao³ k'an⁴") does not imply "having a beautiful face" ("jung²mao⁴mei³li⁴"), while there is implication the other way round, the former can be regarded as a hyperonym of the latter. The sign "ch'ing¹hsiu⁴" is in fact, as it emerges from my data, a synonym of "jung²mao⁴mei³li⁴".

The intersection of the denotation class of "mei³li⁴" and that of "jung²mao⁴hao³k'an⁴" is co-extensive with "ch'ing¹hsiu⁴" (and of course with its synonym "jung²mao⁴mei³li⁴"), as shown in the diagram below:

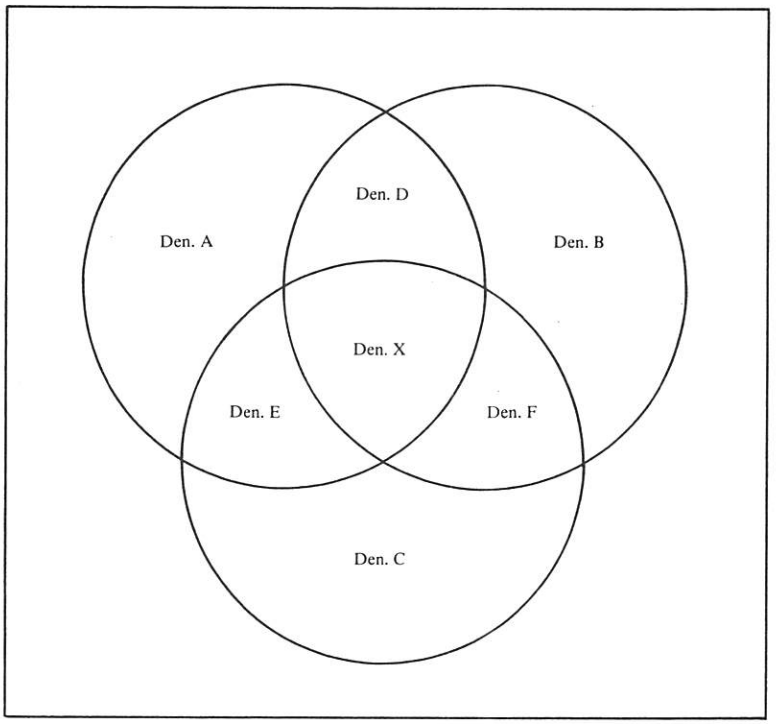


Key:

Den. A: denotation class of "mei³li⁴" (beautiful)
Den. B: denotation class of "jung²mao⁴hao³k'an⁴" (having a pleasant face)
Den. X: denotation class of "ch'ing¹hsiu⁴" (having a beautiful face)

9) Members of the form class {"/Ziau^{1}mei^{3}/'W} and no other utterances constitute the sign "chiao^{1}mei^{3}" with the semantic features *fêng^{1}mao^{4}mei^{3}li^{4}* *nü^{3}jên^{2}mei^{3}li^{4}* and *nü^{3}jên^{2}fêng^{1}mao^{4} hao^{3}k'an^{4}*.

Remarks: The sign "chiao^{1}mei^{3}" can be roughly rendered into English by "beautiful (of the physical attributes of women)". Note that being "beautifully turned out", i.e. "elegantly dressed and carefully made up", is excluded from the denotation of "chiao^{1}mei^{3}", which is strictly limited to cases of "natural" beauty, in women; beauty of bearing and of facial features. The respective features are rendered, also with difficulty, by "beautiful in physique, bearing and facial features (of humans)", "beautiful (of women)" and "pleasant to look at (of women's physique, bearing and facial features)". It should be noted, that although the empirical occurrences are rare, "fêng^{1}mao^{4}mei^{3}li^{4}", or even "mei^{3}li^{4}" ("beautiful in physique, bearing and facial features" or even "beautiful") may be uttered when denoting a quality of human males. This is similar to the case of "beautiful" in English, which might, though rarely, be used to denote a quality in men. The "rarity" here, I would say, is not a matter of the denotation of "beautiful" (and likewise in the Chinese instances above), but the rarity of the actual occurrence of the quality denoted by "beautiful", in men. Nevertheless, denoting the quality of Apollo, as portrayed in some Greek statues, as "beautiful", or "beautiful in physique, bearing and facial features" (in Chinese as "mei^{3}li^{4}" or "fêng^{1}mao^{4}mei^{3}li^{4}") is not in fact anomalous. On the other hand "chiao^{1}mei^{3}" is, according to my informants, strictly limited in denotation to qualities of *female* (not only feminine) beauty.



(The diagram applies also to "chiao¹mei⁴", synonym of "chiao¹ mei³", see item below.)

Key:

Den. A: denotation class of "fêng¹mao⁴hao³k'an⁴" (pleasant to look at in physique, bearing and facial features)
Den. B: denotation class of "mei³li⁴" (beautiful)
Den. C: denotation class of "nü³jên²hao³k'an⁴" (pleasant to look at /of women/)
Den. D: denotation class of "fêng¹mao⁴mei³li⁴" (beautiful in physique, bearing and facial features)
Den. E: denotation class of "nü³jên²fêng¹mao⁴hao³k'an⁴" (pleasant to look at in physique, bearing and facial features /of women/)
Den. F: denotation class of "nü³jên²mei³li⁴" (beautiful /of women/)
Den. X: denotation class of "chiao¹mei³" (or "chiao¹mei⁴" below) (beautiful /of physical attributes of women/)

(10) Members of the form class {"/Ziau^{1}mei^{4}/"} and no other utterances constitute the sign "chiao^{1}mei^{4}" with the semantic features *fêng^{1}mao^{4}mei^{3}li^{4}*, *nü^{3}jên^{2}mei^{3}li^{4}* and *nü^{3}jên^{2}fêng^{1}mao^{4}hao^{3}k'an^{4}*.

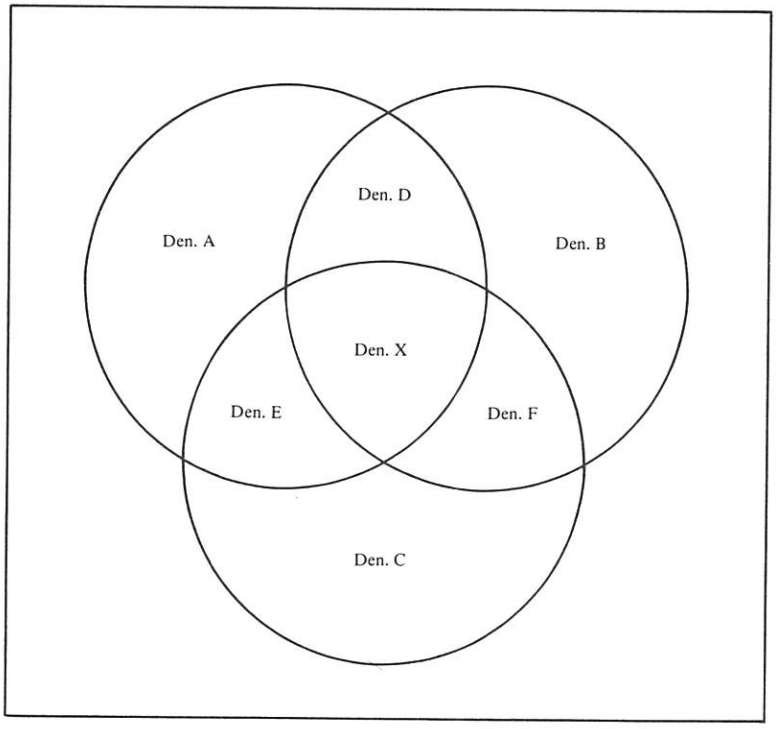
Remarks: According to what I have gathered from my informants there is free variance between the signs "chiao^{1}mei^{3}" and "chiao^{1}mei^{4}", and these two signs are consequently set up as synonyms in my description, in the absence of a refutation. For remarks on "chiao^{1}mei^{4}" see therefore the previous entry, and also the diagram above.

(11) Members of the form class {"/iŋ^{1}Zyn^{4}/"} and no other utterances constitute the sign "ying^{1}chün^{4}" with the semantic features *fêng^{1}mao^{4}mei^{3}li^{4}*, *nan^{2}jên^{2}fêng^{1}mao^{4}hao^{3}k'an^{4}* and *nan^{2}jên^{2}mei^{3}li^{4}*.

Remarks: The sign "ying^{1}chün^{4}" can be roughly rendered into English by "masculine beauty (of physique, bearing and facial features)". The respective features can be rendered by "beautiful in physique, bearing and features (of humans)", "pleasant to look at (of men's physique, bearing and facial features" and "beautiful (of men)". The latter, as I have said in the remarks under "chiao^{1}mei^{3}" (see item 9), is seldom uttered, though not because it is denotationally ruled out, but because of the fact that men, as empirical entities, seem seldom to possess the quality denoted by "mei^{3}li^{4}" ("beautiful"). Yet another reason for the apparent avoidance of the use of "mei^{3}li^{4}" for denoting the physical beauty of males, is perhaps a stylistic one, in that the connotations of "mei^{3}li^{4}" are far too strongly inclined towards "feminine beauty" (though of course it does not denote only this). Thus, while on the one hand "mei^{3}li^{4}" (even in the case of men) *denotes* a favourable quality, yet on the other hand it might tend to *connote* "femininity", in an unfavourable and unflattering way. In order to avoid this conflict of denotation with connotation, in actual speech, realizations of the denotationally more precise, and connotationally favourable "ying^{1}chün^{4}" are preferred for denoting beauty in men.

Conflict between connotation and denotation does occasionally tend to obscure the denotation of signs, and make for difficulties in data-gathering. In the case of "ch'iao^{2}pien^{4}tzŭ^{0}" and "ch'ü^{4}shih^{4}", which appear as stylistically distinct synonyms in my description (see Part Two, Chapter I,), the synonymy (i.e. denotational equivalence) of the two signs was practically obscured by the fact that many of my informants rejected utterances of "tsung^{3}t'ung^{3}ch'iao^{2}pien^{4}tzŭ^{0}" ("the President (has) kicked the bucket"), insisting that in such utter-

ances only "ch'ü⁴shih⁴" could be correctly used. These informants had agreed that the death of any human being could be denoted by an utterance of "ch'iao²pien⁴tzŭ⁰", and yet, they were now denying that the President could be said to "ch'iao²pien⁴tzŭ⁰". This apparent contradiction can, in fact, only be resolved by having recourse to two (at least) different levels of meaning – by saying that "tsung³t'ung³ ch'iao²pien⁴tzŭ⁰" is *denotationally correct*, but is stylistically (connotationally) anomalous, unless the speaker wishes to mark his dislike of, or contempt for, the President in question. Thus it is quite in order to state that "ch'iao²pien⁴tzŭ⁰" and "ch'ü⁴shih⁴" are denotationally identical, while keeping in mind that they are stylistically different. Roughly speaking, though such statements do not properly belong to my description, since they are not within the scope of the theory, "ch'ü⁴shih⁴" *connotes* "respect" and "ch'iao²pien⁴tzŭ⁰" *connotes* "disrespect".



Key:

Den. A: denotation class of "fêng¹mao⁴hao³k'an⁴" (pleasant to look at in physique, bearing and facial features)

Den. B: denotation class of "mei^{3}li^{4}" (beautiful)
Den. C: denotation class of "nan^{2}jên^{2}hao^{3}k'an^{4}" (pleasant to look at /of men/)
Den. D: denotation class of "fêng^{1}mao^{4}mei^{3}li^{4}" (beautiful in physique, bearing and facial features)
Den. E: denotation class of "nan^{2}jên^{2}fêng^{1}mao^{4}hao^{3}k'an^{4}" (pleasant to look at in physique, bearing and facial features /of men/)
Den. F: denotation class of "nan^{2}fên^{2}mei^{3}li^{4}" (beautiful /of men/)†
Den. X: denotation class of "ying^{1}chün^{4}" (beautiful in physique, bearing and facial features /of men/)

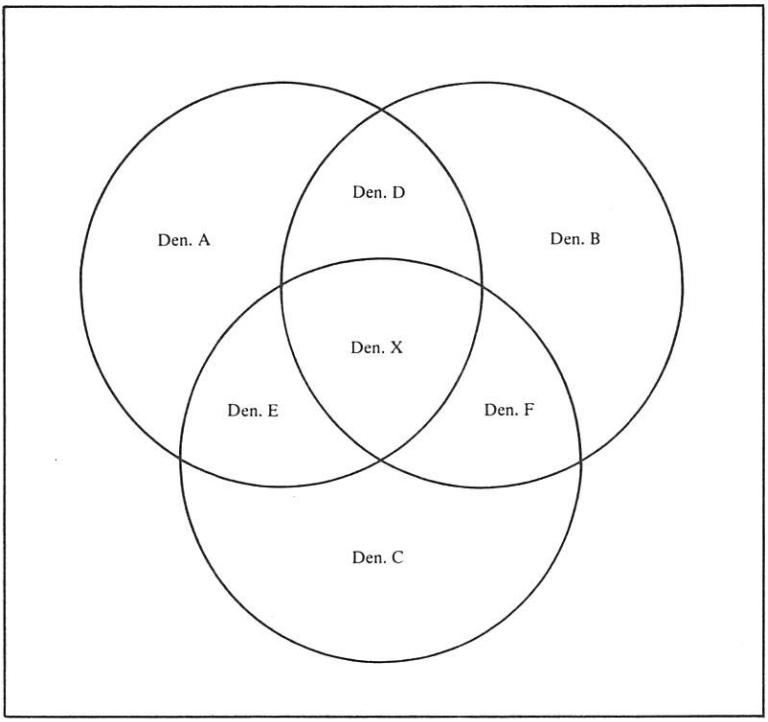
(12) Members of the form class {"/Siau^{1}sa^{3}/"} and no other utterances constitute the sign "hsiao^{1}sa^{3}", with the semantic features *t'i^{3}t'ai^{4}mei^{3}li^{4}*, *nan^{2}jên^{2}t'i^{3}t'ai^{4}hao^{3}k'an^{4}* and *ying^{1}chün^{4}*.

Remarks: The sign "hsiao^{1}sa^{3}" may be rendered into English by "beautiful in bearing (of men)" and its respective features by "beautiful in bearing", "pleasant to look at in bearing (of men)" and "beautiful in physique, bearing and facial features (of men)".

In the case of the present sign the limitation expressed by "of men" is a matter of denotation. Whereas in the case of "mei^{3}li^{4}", its realizations *tended to* denote beauty in women, rather than in men, and thus the sign could be said to *connote* feminine beauty, it was nevertheless *not* the case that *no realization could ever* correctly denote masculine beauty of a certain kind. This fact emerged clearly from my work with informants who felt that there was something "strange" in "nan^{2}jên^{2}mei^{3}li^{4}" ("the man is beautiful"), but nevertheless agreed to the possibility of *correct* utterances of this type, provided the male bearer of the quality denoted by that realization was a "suitable" one (e.g. Apollo "t'ai^{4}yang^{2}shên^{2}").

In the case of "hsiao^{1}sa^{3}", however, it is not that utterances of this sign denoting a quality in women would be considered possible, but "strange". On the contrary, my statement of the semantic features of this sign is based on the fact that I have not found *any* realization of this sign denoting a quality in a woman. Consequently, I have regarded the limiting of the denotation class of "hsiao^{1}sa^{3}" to qualities of men only, to be a step consistent with my data.

† This sign is seldom realized for stylistic reasons.



Key:

Den. A: denotation class of "fêng¹mao⁴mei³li⁴" (beautiful in physique, bearing and facial features)

Den. B: denotation class of "t'i³t'ai⁴hao³k'an⁴" (pleasant to look at in bearing)

Den. C: denotation class of "nan²jên²hao³k'an⁴" (pleasant to look at /of men/)

Den. D: denotation class of "t'i³t'ai⁴mei³li⁴" (beautiful in bearing)

Den. E: denotation class of "nan²jên²t'i³t'ai⁴hao³k'an⁴" (pleasant to look at in bearing /of men/)

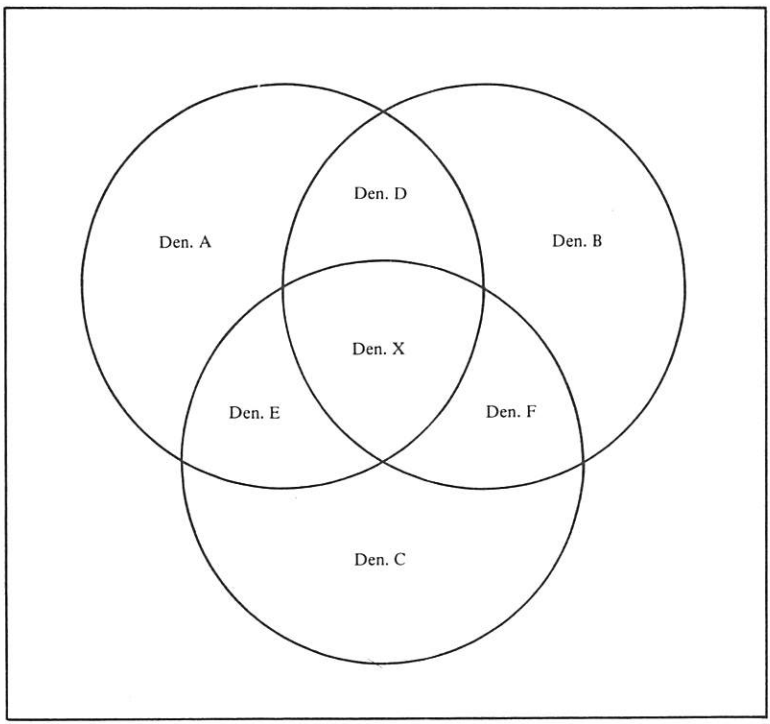
Den. F: denotation class of "ying¹chün⁴" (beautiful in physique, bearing and facial features /of men/)

Den. X: denotation class of "hsiao¹sa³" (beautiful in bearing /of men/)

(13) Members of the form class {"/ian⁴Li⁴/"} and no other utterances constitute the sign "yen⁴li⁴" with the semantic features *ta³pan⁴tê⁰mei³li⁴*, *nü³jên²mei³li⁴* and *nü³jên²ta³pan⁴tê⁰hao³k'an⁴*.

Remarks: The sign "yen^{4}li^4" can be rendered into English by "beautifully turned out /in clothing and make-up/ (of women)", and the respective features by "beautifully turned out", "beautiful (of women)" and "pleasantly turned out (of women)". As the features indicate, the denotation class of "yen^{4}li^4" was found, according to the data gathered from informants, to be limited to "the beautiful appearance of women's clothing and make-up", what one might call "artificial" or "borrowed" beauty. It does not refer to beauty of physical features, facial or otherwise, though of course one and the same woman may possess the qualities denoted by "chiao^{1}mei^3" as well as those denoted by "yen^{4}li^4". In no instance did my informants agree that a man who was "beautifully turned out" ("ta^{3}pan^{4}tê^{0}mei^{3}li^4") could be said to have the quality denoted by "yen^{4}li^4". It is for this reason that I have concluded that the above sign is limited to qualities of women.

The diagram below shows the intersection of a number of denotation classes whose intersection is co-extensive with the denotation class of "yen^{4}li^4":



Key:

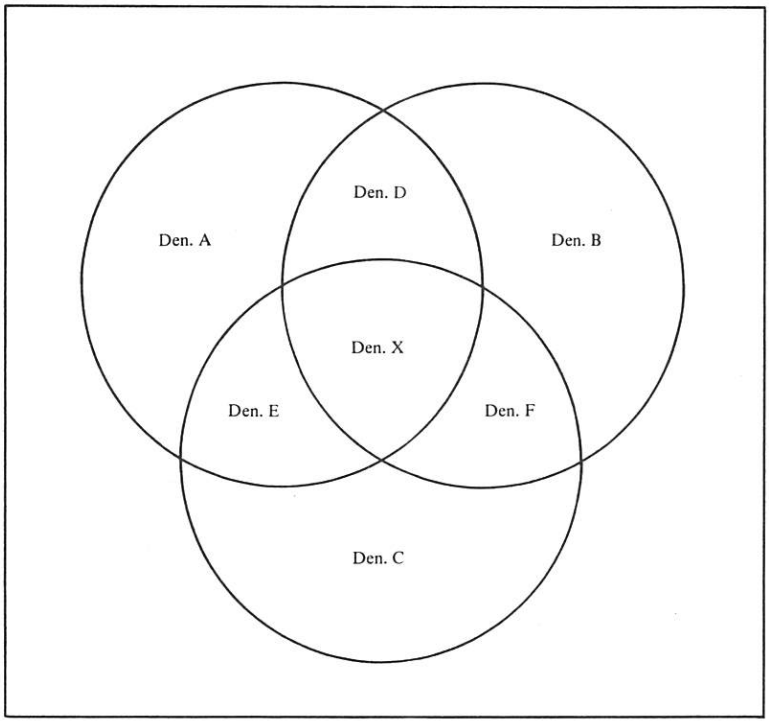
Den. A: denotation class of "mei³li⁴" (beautiful)
Den. B: denotation class of "ta³pan⁴tê⁰hao³k'an⁴" (pleasantly turned out)
Den. C: denotation class of "nü³jên²hao³k'an⁴" (pleasant to look at /of women/)
Den. D: denotation class of "ta³pan⁴tê⁰mei³li⁴" (beautifully turned out)
Den. E: denotation class of "nü³jên²mei³li⁴" (beautiful /of women/)
Den. F: denotation class of "nü³jên²ta³pan⁴tê⁰hao³k'an⁴" (pleasantly turned out /of women/)
Den. X: denotation class of "yen⁴li⁴" (beautifully turned out /of women/)

(14) A subclass of the form class {"/Ci³Li⁴/"} and no other utterances constitute the sign "ch'i³li⁴" with the semantic features *ching³ sê⁴mei³li⁴*, *jou²mei³* and *ching³sê⁴jou²tê⁰hao³k'an⁴*.

Remarks: The sign "ch'i³li⁴" can be rendered into English by "softly beautiful (of scenery, vista or view)", and the respective features by "beautiful (of scenery)", "softly beautiful" and "pleasant to look at in a soft and gentle way (of scenery)".

The rendering of this sign and of the features is particularly dificult because of the problems of indicating the exact value here of "jou²". Neither "soft" nor "gentle" nor "tender" nor any other English word I can think of will act as a close rendering. In the case of describing scenery the force of "jou²mei³" ("soft and beautiful") can perhaps be most effectively indicated by "not-ruggedly beautiful" (a very stilted syntagm in English).

There is at least one homonym of "ch'i³li⁴", notably the sign "ch'i³li⁴" ("to stand up /straight/"), which satisfies the conditions for *bona fide* homonymy in that its denotation class does not intersect with that of "ch'i³li⁴", and it has no semantic feature in common with that sign. (The latter should be clearly apparent from the fact that none of the features of "ch'i³li⁴" above could possibly appear as features of "ch'i³li⁴", whose utterances denote actions or processes.)



Key:

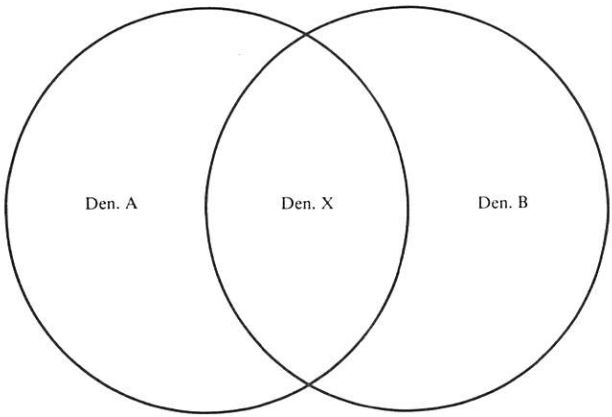
Den. A: denotation class of "mei^{3}li^{4}" (beautiful)
Den. B: denotation class of "ching^{3}sê^{4}hao^{3}k'an^{4}" (pleasant to look at /of scenery/)
Den. C: denotation class of "jou^{2}" (soft, gentle, tender /?/)
Den. D: denotation class of "ching^{3}sê^{4}mei^{3}li^{4}" (beautiful /of scenery/)
Den. E: denotation class of "jou^{2}mei^{3}" (softly beautiful)
Den. F: denotation class of "ching^{3}sê^{4}jou^{2}tê^{0}hao^{3}k'an^{4}" (gentle and pleasant to look at /of scenery/)
Den. X: denotation class of "ch'i^{3}li^{4}" (softly beautiful /of scenery/)

(15) Members of the form class {"/miŋ^{2}mei^{4}/"} and no other utterances constitute the sign "ming^{2}mei^{4}" with the semantic features *mei^{3}li^{4}* and *ch'ing^{1}ming^{2}*.

Remarks: The sign "ming^{2}mei^{4}" can be rendered into English by "beautiful, clear and bright", and its respective semantic features by "beautiful" and "clear and bright".

Typical uses of this sign are in utterances denoting qualities of scenery, weather, or both, but it is by no means restricted to such uses. In fact, any denotatum that may have the qualities denoted by "ch'ing¹ming²" ("clear and bright") and by "mei³li⁴" ("beautiful") may indeed be said to have the quality denoted by "ming²mei⁴". (E.g. "yüeh⁴liang⁴ming²mei⁴" /"the moonlight is very bright, clear and beautiful"/.) Thus, whereas "ch'i³li⁴" was found to be actually denotationally limited to qualities of scenery, landscape or view (though this of course remains refutable by the introduction of contradictory data), "ming²mei⁴" was not found to show such a limitation. Where on the one hand "ching³sê⁴jou²mei³" appears to be a *synonym* of "ch'i³li⁴", on the other hand "ching³sê⁴ch'ing¹ming²êrh²mei³li⁴" is a *hyponym* of "ming²mei⁴".

The diagram below shows the intersection of the denotation classes of "mei³li⁴" and "ch'ing¹ming²" as being co-extensive with the denotation class of "ming²mei⁴".



Key:

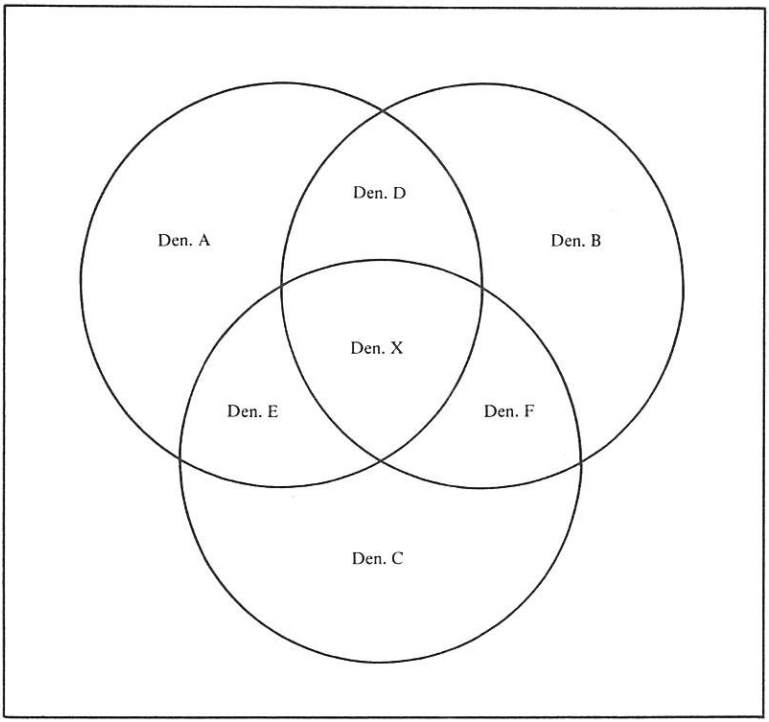
Den. A: denotation class of "mei³li⁴" (beautiful)
Den. B: denotation class of "ch'ing¹ming²" (clear and bright)
Den. X: denotation class of "ming²mei⁴" (clear, bright and beautiful)

(16) Members of the form class {"/fu³mei⁴/"} and no other utterances constitute the sign "fu³mei⁴" with the semantic features *chiao¹mei³*, *ch'ing¹hsiu⁴* and *nü³jên²jung²mao⁴hao³k'an⁴*.

Remarks: The sign "fu³mei⁴" can be rendered in English by "hav-

ing a beautiful face (of women)" and the respective features by "beautiful in physique, bearing and facial features (of women)", "beautiful in facial features" and "pleasant to look at in facial features (of women)". The particular qualities denoted by utterances of "fu^{3}mei^4" must be supposed to be exclusively "feminine", since no case was found in which "(nan^{2}jên^2)ch'ing^{1}hsiu^4" could be replaced with "(nan^{2}jên^2)fu^{3}mei^4". Indeed, I have not succeeded in finding any *correct* utterance of "nan^{2}jên^{2}fu^{3}mei^4", whereas, it will be remembered, I did find such utterances in the case, for instance, of "nan^{2}jên^{2}mei^{3}li^4".

According to my informants the sign in question here consists of members of the form class {"/fu^{3}mei^4/"}, and should be labelled on the basis of the Wade-Giles orthography as "fu^{3}mei^4". Mathew's Dictionary assigns the pronunciation *wu*^{3} and *mei*^{4} to the characters that are used for writing "fu^{3}mei^4". I have opted here for the data gathered from informants, while aware of the risk of presenting data of a dialectal nature. On the other hand, Mathew's rendering bears little relation to the rendering here, which itself is based on work with informants.



Key:

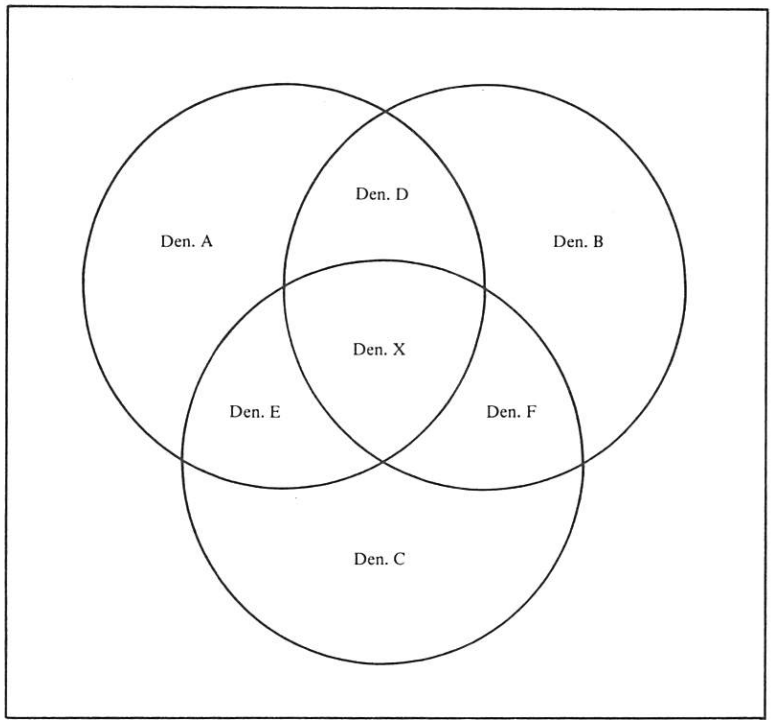
Den. A: denotation class of "mei³li⁴" (beautiful)
Den. B: denotation class of "nü³jên²fêng¹mao⁴hao³k'an⁴" (pleasant to look at in physique, bearing and facial features /of women/)
Den. C: denotation class of "jung²mao⁴hao³k'an⁴" (pleasant in facial features)
Den. D: denotation class of "chiao¹mei³" (beautiful in physique, bearing and facial features /of women/)
Den. E: denotation class of "ch'ing¹hsiu⁴" (beautiful in facial features)
Den. F: denotation class of "nü³jên²jung²mao⁴hao³k'an⁴" (pleasant in facial features /of women/)
Den. X: denotation class of "fu³mei⁴" (beautiful in facial features /of women/)

(17) Members of the form class {"/Ziau¹Siau³/"} and no other utterances constitute the sign "chiao¹hsiao³" with the semantic features *shên¹ts'ai²hsiao³êrh²mei³li⁴*, *chiao¹mei³* and *nü³jên²shên¹ts'ai²hsiao³êrh²hao³k'an⁴*.

Remarks: The sign "chiao¹hsiao³" can be rendered into English by "petite and beautiful", while the features are renderable, respectively, by "small and beautiful in build", "beautiful in build, bearing and in facial features (of women)" and "petite and pleasant to look at".

I have selected "petite" as a rendering here, since its denotation class, like that of "chiao¹hsiao³" is clearly limited to qualities in women. "shên¹ts'ai²hsiao³êrh²mei³li⁴" is treated as a hyperonym of "chiao¹hsiao³" on the assumption, confined by my informants, that the former can denote qualities in male human beings as well as in females.

The diagram below shows the intersection of a number of denotation classes to be co-extensive with the denotation class of "chiao¹hsiao³". A possible synonym of the latter sign would be "nü³jên²shên¹ts'ai²hsiao³êrh²mei³li⁴".



Key:

Den. A: denotation class of "fêng^{1}mao^{4}mei^{3}li^{4}" (beautiful in build, bearing and facial features)

Den. B: denotation class of "shên^{1}ts'ai^{2}hsiao^{3}êrh^{2}hao^{3}k'an^{4}" (small and pleasant to look at in build)

Den. C: denotation class of "nü^{3}jên^{2}hao^{3}k'an^{4}" (pleasant to look at /of women/)

Den. D: denotation class of "shên^{1}ts'ai^{2}hsiao^{3}êrh^{2}mei^{3}li^{4}" (small and beautiful in build)

Den. E: denotation class of "chiao^{1}mei^{3}" (beautiful in build, bearing and facial features /of women/)

Den. F: denotation class of "nü^{3}jên^{2}shên^{1}ts'ai^{2}hsiao^{3}êrh^{2}hao^{3}k'an^{4}" (small and pleasant to look at in build /of women/)

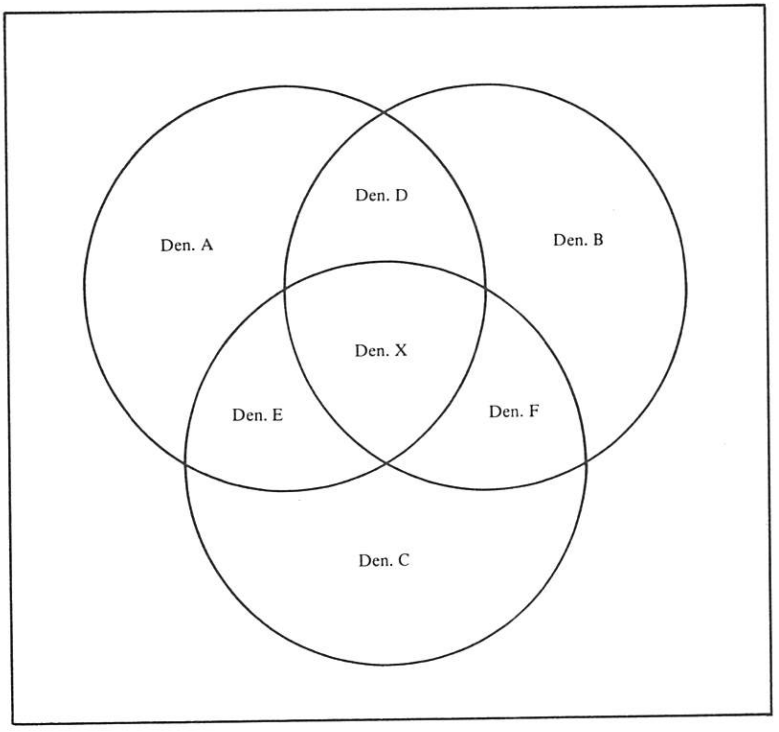
Den. X: denotation class of "chiao^{1}hsiao^{3}" (petite and beautiful)

(18) Members of the form class {"/e^{1}nue^{2}/"} and no other utterances constitute the sign "o^{1}no^{2}" with the semantic features *t'i^{3}t'ai^{4}

mei³li⁴*, *chiao¹mei³* and *nü³jên²t'i³t'ai⁴hao³k'an⁴*.

Remarks: The sign "o¹no²" can be rendered into English by "beautiful in bearing (of women)" (perhaps by "graceful and elegant"). The respective features can be rendered by "beautiful in bearing", "beautiful in build, bearing and facial features (of women)" and "pleasant to look at in bearing (of women)".

It will be readily seen from a comparison of "hsiao¹na³" with "o¹no²" that they make, in a sense, a pair. The former denotes "beauty of bearing in men" and the latter "beauty of bearing in women". In terms of the present theory, this fact would be accountable in terms of the statement that the signs "hsiao¹sa³" and "o¹no²" are paronyms, with disjunct denotation classes, with respect to their common direct hyperonym "t'i³t'ai⁴mei³li⁴.



Key:

Den. A: denotation class of "fêng¹mao⁴mei³li⁴" (beautiful in build, bearing and facial features)

Den. B: denotation class of "t'i^{3}t'ai^{4}hao^{3}k'an^{4}" (pleasant to look at in bearing)

Den. C: denotation class of 'nü^{3}jên^{2}hao^{3}k'an^{4}" (pleasant to look at /of women/)

Den. D: denotation class of "t'i^{3}t'ai^{4}mei^{3}li^{4}" (beautiful in bearing)

Den. E: denotation class of "chiao^{1}mei^{3}" (beautiful in build, bearing and facial features /of women/)

Den. F: denotation class of "nü^{3}jên^{2}t'i^{3}t'ai^{4}hao^{3}k'an^{4}" (pleasant to look at in bearing /of women/)

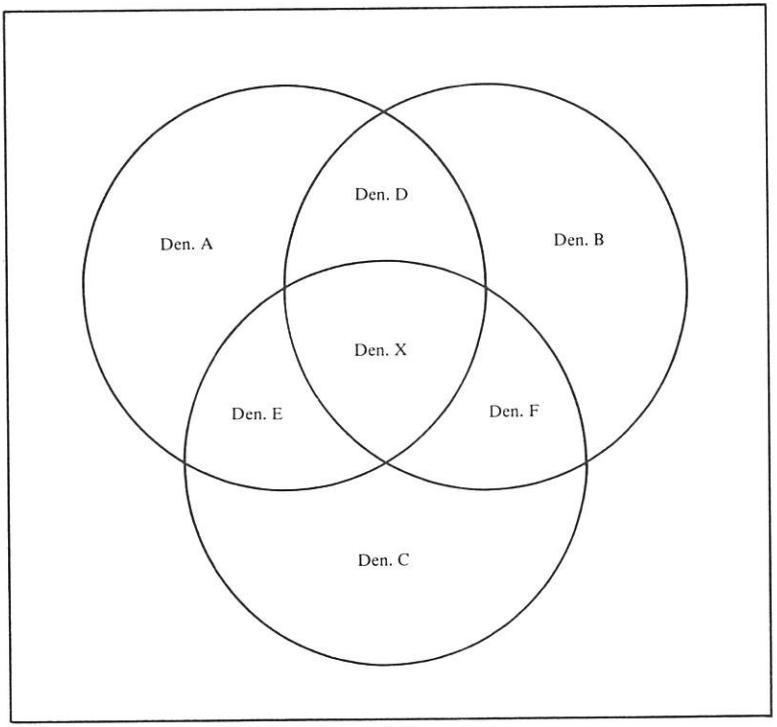
Den. X: denotation class of "o^{1}no^{2}" (beautiful in bearing /of women/)

(19) Members of the form class "/iau^{1}ian^{4}/"} and no other utterances constitute the sign "yao^{1}yen^{4}" with the semantic features *nü^{3} jên^{2}mei^{3}li^{4}tê^{0}(hên^{3})mi^{2}jên^{2}*, *yen^{4}li^{4}* and *nü^{3}jên^{2}to^{3}pan^{4}tê^{0}(hên^{3}) mi^{2}jên^{2}*.

Remarks: The sign "yao^{1}yen^{4} "can be rendered into English by "beautifully and seductively dressed and made up (of women)". Of course even in English we do not speak of men being "beautifully and seductively dressed and made up", but I have added a perhaps redundant "of women" in order to stress this fact.

The respective features above can be rendered by "beautiful and seductive /or, seductively beautiful/ (of women"), "beautifully dressed and made up", and "seductively dressed and made up (of women)".

The sign "hên^{3}" is included in brackets wherever "mi^{2}jên^{2}" is used, with the purpose of distinguishing "mi^{2}jên^{2}" ("seductive") from its homonym "mi^{2}jên^{2} I" ("to seduce a man, to make a man infatuated"). The latter is clearly a syntagm, while the former is a word. The ambiguity as to which of them is referred to, is removed where "hên^{3}" precedes, and thus I have used this as a label for indicating the word "mi^{2}jên^{2}" ("seductive").



Key:

Den. A: denotation class of "nü³jên²mei³li⁴" (beautiful /of women/)

Den. B: denotation class of "(hên³)mi²jên²" (seductive)

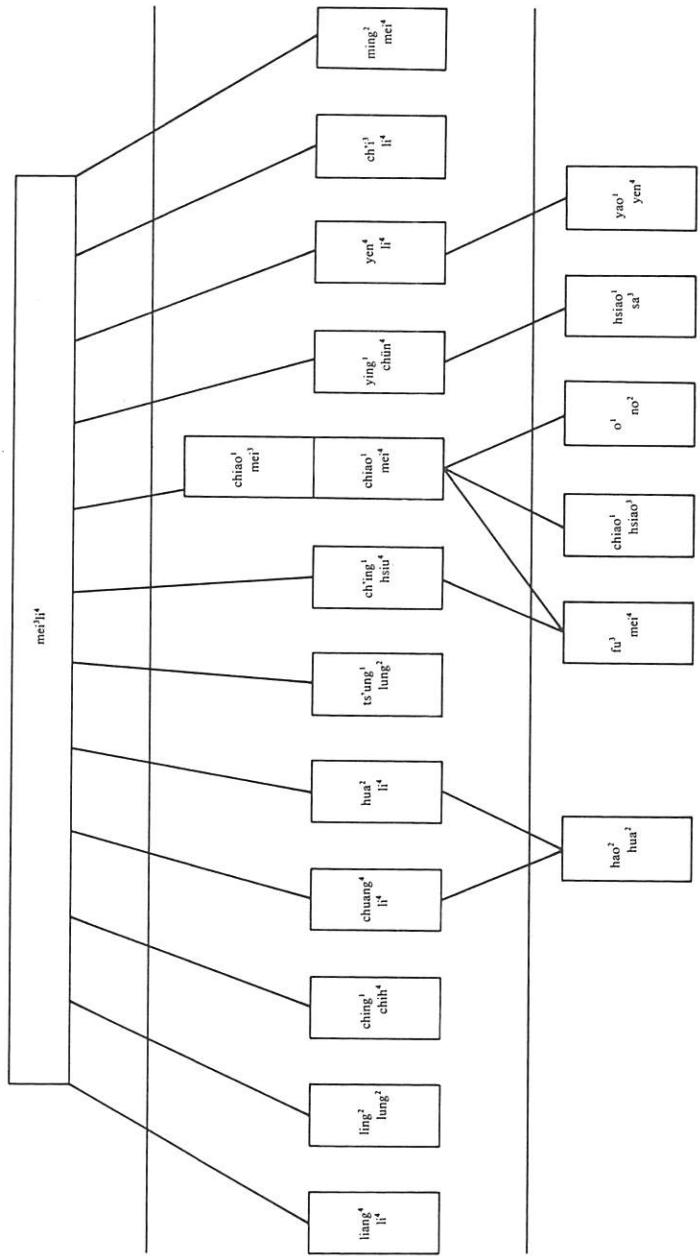
Den. C: denotation class of "nü³jên²ta³pan⁴tê⁰hao³k'an⁴" (dressed and made up in a pleasant way /of women/)

Den. D: denotation class of "nü³jên²mei³li⁴tê⁰(hên³)mi²jên²" (seductively beautiful /of women/)

Den. E: denotation class of "yen⁴li⁴" (beautifully dressed and made up)

Den. F: denotation class of "nü³jên²ta³pan⁴tê⁰(hên³)mi²jên²" (seductively dressed and made up /of women/)

Den. X: denotation class of "yao¹yen⁴" (beautifully and seductively dressed and made up /of women/)


mei²li⁴
liang⁴ li⁴
ling² lung²
ching¹ chih⁴
chuang⁴ li⁴
hua² li⁴
ts'ung¹ lung²
ch'ing¹ hsiu⁴
chiao¹ mei³
chiao¹ mei⁴
ying¹ chün⁴
yen⁴ li⁴
ch'i³ li⁴
ming² mei⁴
hao² hua²
fu³ mei⁴
chiao¹ hsiao³
o¹ no²
hsiao³ sa³
yao³ yen⁴

IV

Kinship Terms

Remarks to the Inventory of Kinship Terms

In what follows I shall present an inventory of 140 items denoting various kinship relationships in Chinese. To the best of my knowledge (but this is a grammatical matter) I have limited the inventory to *words* (no *monemes* or *syntagms* appear as items), though syntagms appear, of course, as labels for the semantic feature of items.

The diagrams immediately following these remarks present the inventory arranged on the basis of *genetic* relations:

(*a*) parent-child relation (symbolized with an arrow pointing towards the parent)
(*b*) sibling relation (symbolized with a straight line connecting items)
(*c*) husband-wife relation (symbolized with a two-headed arrow ↔)

In a certain sense it can be said that these diagrams play a role in limiting the inventory which, even thus, is of considerable size. That is to say, no item not on the *genetic* diagram appears in the list of the inventory set out following those diagrams. The other reasons for including these diagrams are that

(*a*) they show a possible, but linguistically not particularly revealing organization of kinship terms (note that a *genetic* diagram would be organized in essentially the same way for any language whatsoever);
(*b*) they invite comparison with the completely different structures of the hierarchical network diagrams at the end of this Chapter (this latter type of diagram would tend to differ considerably between different languages).

The *genetic* diagrams are, themselves, limited in an arbitrary way (such arbitrary limitation is necessary in all descriptions of open sets of items); for instance, the diagram of *ancestors* and that of *descendants*, are not continued beyond the third generation, whereas they could, of course, be continued indefinitely.

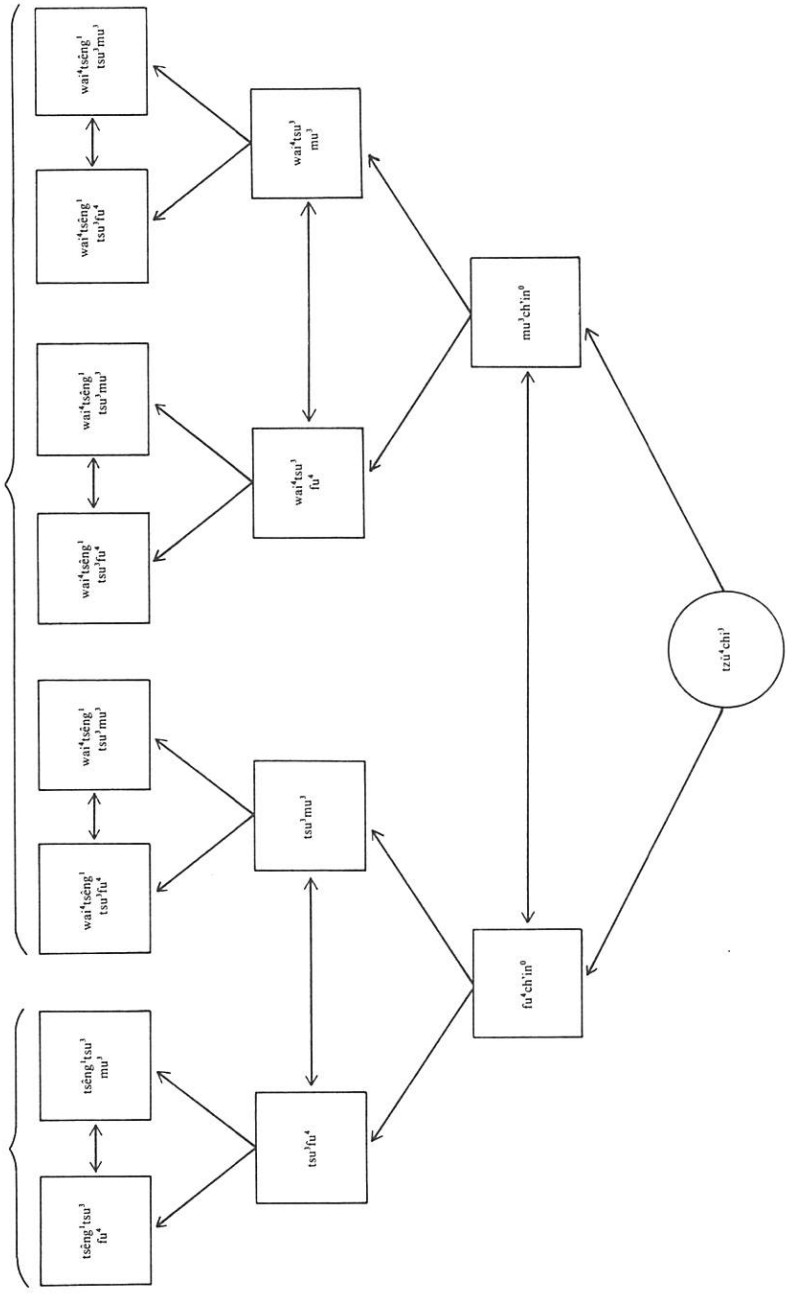
Following the *genetic* diagrams, the inventory is set out with the items in the left-hand column, and their semantic features in the corresponding right-hand column. The identity of each item is, of course, a matter of hypothesis, but with a view to the size of the inventory, the hypotheses are not stated in full. The form class whose members are assigned to a given sign is given immediately below the sign in question. If no homonym is mentioned, the assumption is not necessarily that all members of the given form class belong to the sign in question, only that such homonyms were not actually elicited from my informants. Rough renderings in what is often clumsy English, but *denotationally* as exact as possible, are attached to both the signs in the inventory and the signs which are used as labels for the semantic features.

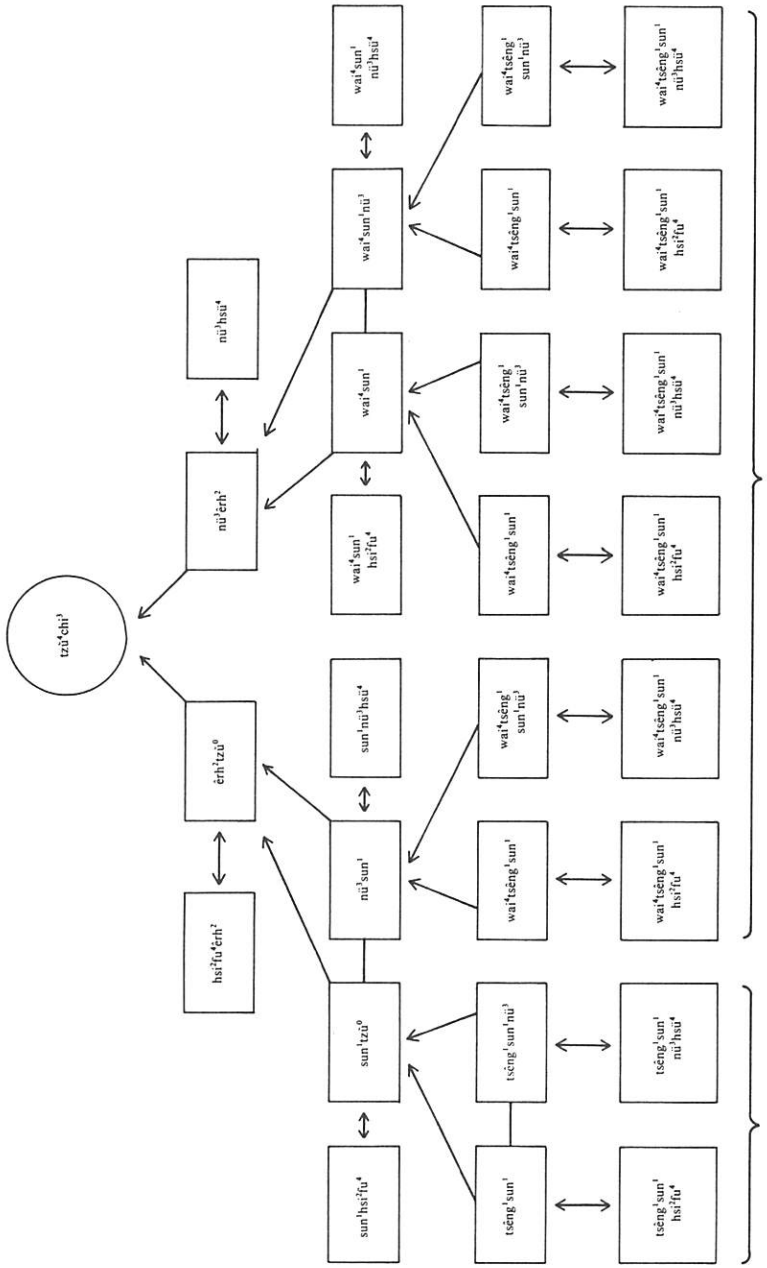
As a further remark to the inventory I must mention that my conclusions about the *denotation* of items, as well as the selection and compilation of the inventory, are based on work with Mandarin-speaking informants. Thus, only those items which were familiar to my informants, that is to say, were used by them with some degree of frequency, are included in my description. The description is of data gathered from informants and not gleaned from dictionaries.

At the end of this Chapter the inventory is organized on the basis of the hypero-hyponymy relations which play such a fundamental role in my semantic theory. I have every reason to believe that the structure obtained in this way is unique to Chinese, and it is this that makes the structure interesting.

Ideally speaking, the whole inventory should appear in one diagram, under the common hyperonym "ch'in^{1}ch'i^{1}" ("relative, kinsman"). This is impossible, owing to the number of items which would have to appear on such a diagram. Instead, I have divided the inventory into manageable subsections, under their respective common hyperonyms. Each item in the inventory (designated by its number) is traced *via* its *direct hyperonyms* (designated by their numbers) to a given common hyperonym (signs which don't have a number in the inventory are written out in full on the diagram†). The various hyperonyms which appear as headings in the separate diagrams are then traced *via* their hyperonyms to the hyperonym "ch'in^{1}ch'i^{1}" ("relative, kinsman") which is a common hyperonym to all the items in the inventory. In this way we can obtain the next best thing to a complete, single-diagram representation of the structure of the whole inventory.

† The renderings of these items are numerically listed on pp. 282–286.


wai⁴tsêng¹ tsu²mu³
wai⁴tsêng¹ tsu²fu⁴
wai⁴tsu³ mu³
wai⁴tsêng¹ tsu²mu³
wai⁴tsêng¹ tsu²fu⁴
wai⁴tsu³ fu⁴
mu³ch'in⁰
wai⁴tsêng¹ tsu²mu³
wai⁴tsêng¹ tsu²fu⁴
tsu³mu³
tsêng¹tsu³ mu³
tsêng¹tsu³ fu⁴
tsu³fu⁴
fu⁴ch'in⁰
tzŭ³chi³


tzŭ⁴ěrh³
nü³ěrh²
nü³hsü⁴
ěrh³tzŭ⁰
hsi²fu⁴ěrh²
nü³sun¹
sun¹nü³hsü⁴
sun¹tzŭ⁰
sun¹hsi²fu⁴
wai⁴sun¹
hsi²fu⁴
wai⁴sun¹nü³
wai⁴sun¹nü³
wai⁴sun¹hsü⁴
wai⁴tsêng¹sun¹
wai⁴tsêng¹sun¹
hsi²fu⁴
wai⁴tsêng¹sun¹
nü³hsü⁴
wai⁴tsêng¹sun¹
wai⁴tsêng¹sun¹
nü³
wai⁴tsêng¹sun¹
hsi²fu⁴
wai⁴tsêng¹sun¹
nü³hsü⁴
tsêng¹sun¹
tsêng¹sun¹
nü³hsü⁴
tsêng¹sun¹
hsi²fu⁴

ko¹ko⁰
sao³tzŭ⁰
chih²ěrh²
chih²nü³
chih²hsi²
chih²nü³hsü⁴
ti⁴ti⁰
ti⁴mei⁴
chih²ěrh²
chih²nü³
chih²hsi²
chih²nü³hsü⁴
tzŭ⁴chi³
chieh³chieh⁰
chieh³fu¹
wai⁴shêng¹nü³
wai⁴shêng¹
wai⁴shêng¹nü³hsü⁴
wai⁴shêng¹hsi²
mei⁴mei⁰
mei⁴fu¹
wai⁴shêng¹nü³
wai⁴shêng¹
wai⁴shêng¹nü³hsü⁴
wai⁴shêng¹hsi²
chih²sun¹
chih²sun¹nü³
chih²sun¹nü³hsü⁴
chih²sun¹hsi²
shêng¹sun¹
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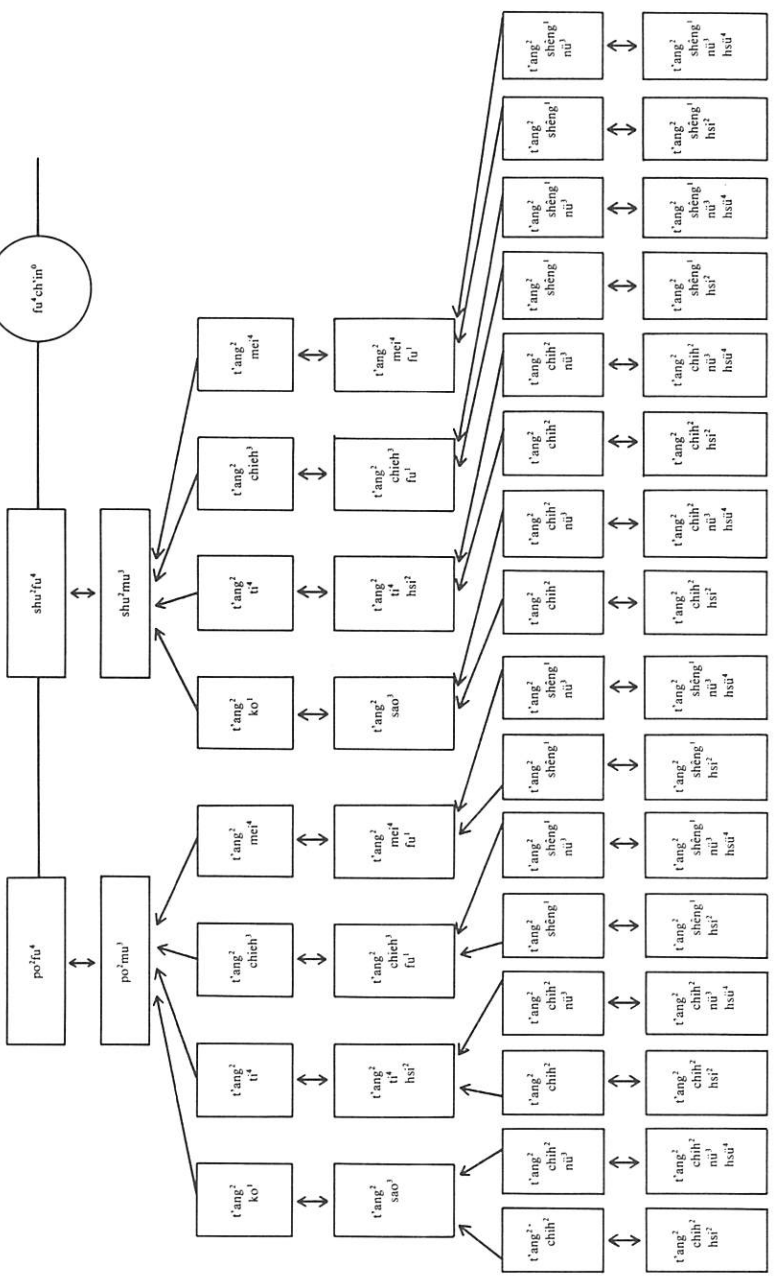
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t'ang² mei⁴
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t'ang² chih² nü³ hsü⁴
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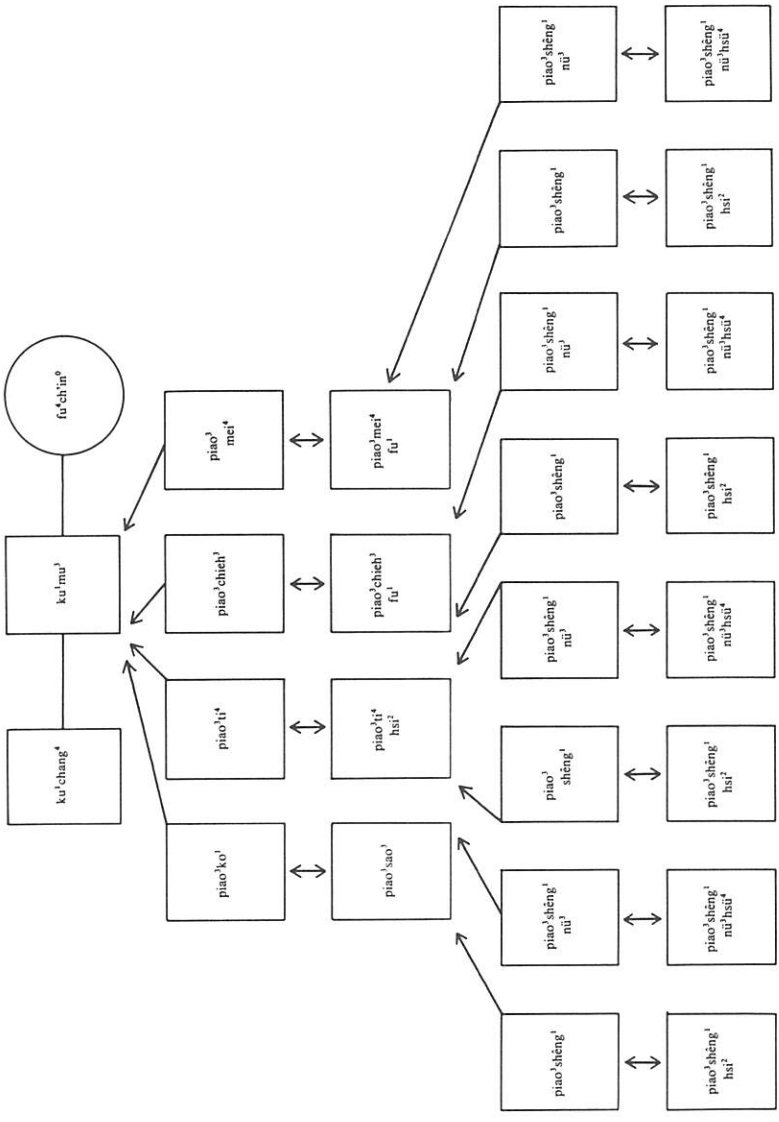
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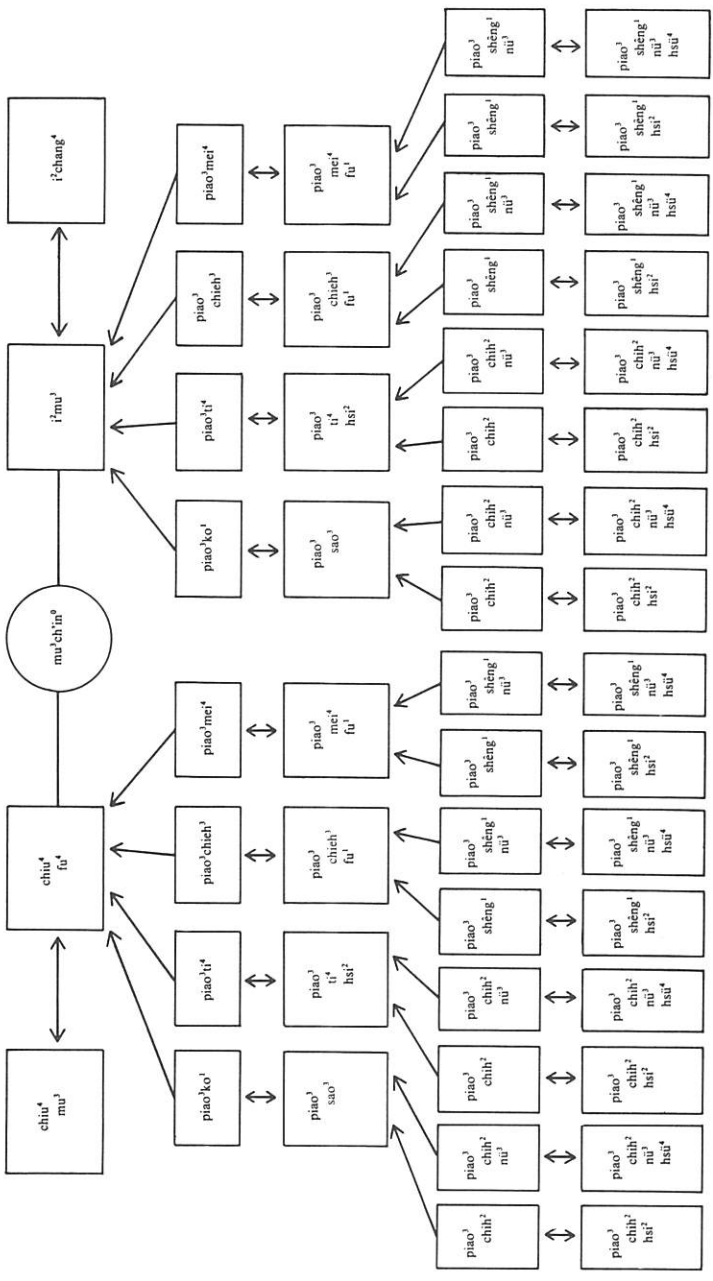
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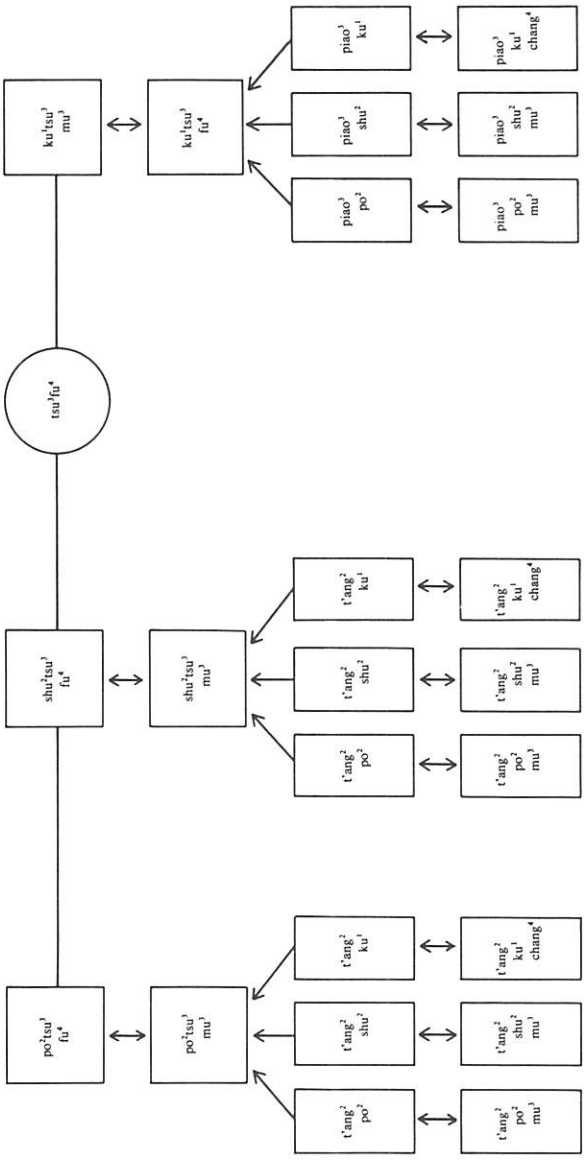
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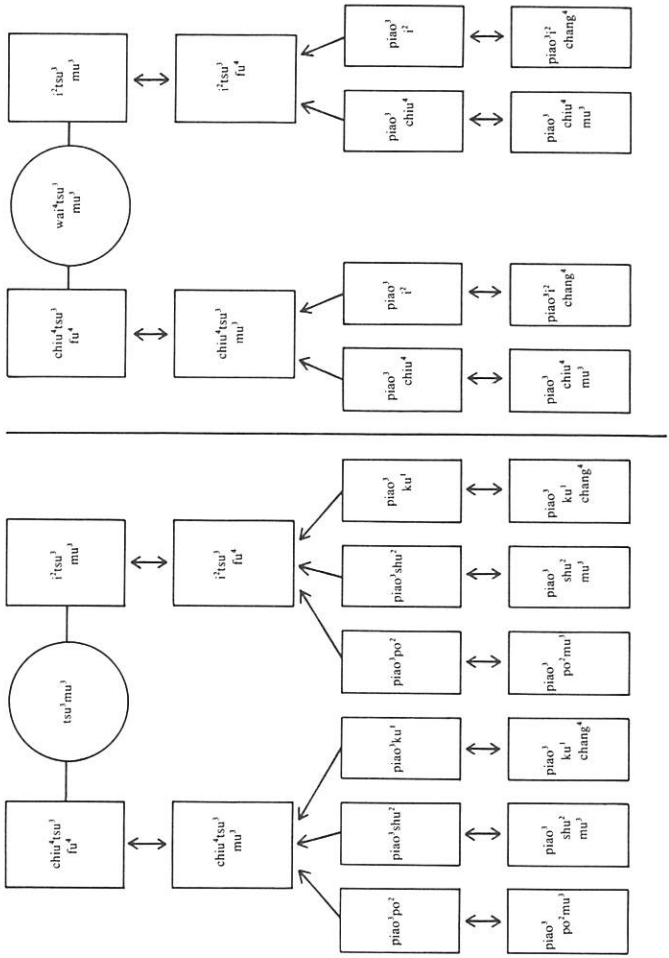
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piao³ ku¹
piao³ po²mu³
piao³ shu² mu³
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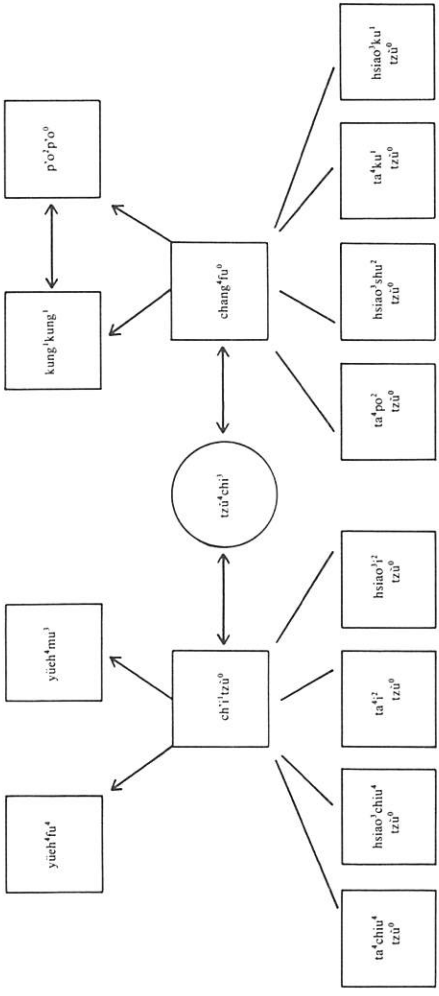
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ta⁴po² tzŭ⁰
tzŭ³chi³
yüeh⁴mu³
yüeh⁴fu⁴
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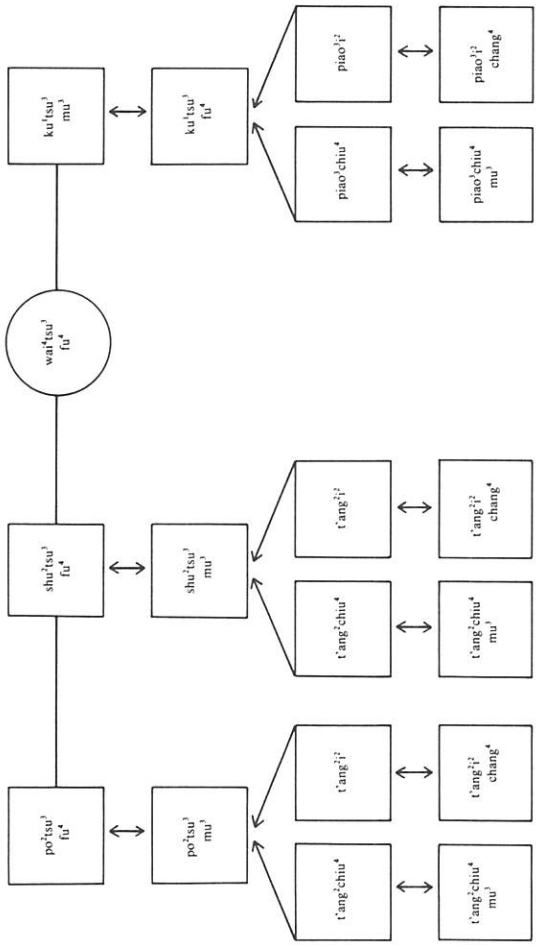
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shu¹tsu³ fu⁴
shu¹tsu³ mu³
t'ang²i²
t'ang²i² chang⁴
t'ang²chiu⁴
t'ang²chiu⁴ mu³
po²tsu³ fu⁴
po²tsu³ mu³
t'ang²i²
t'ang²i² chang⁴
t'ang²chiu⁴
t'ang²chiu⁴ mu³

Inventory

ITEM	FEATURES
1. "fu^{4}ch'in^{0}" {"/fu^{4}Cin/"} "father"	(*a*) chang^{3}i^{2}pei^{4}tê^{0}chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "ancestor or progenitor one generation removed" i.e. "parent" (*b*) tsu^{3}fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "son of paternal grandparents" (*c*) pa^{4}pa^{0} "father or stepfather" (*d*) nan^{2}tsu^{3}hsien^{1} "male ancestor" (*e*) tzŭ^{4}chi^{3}hai^{2}tzŭ^{0}tê^{0}tsu^{3}fu^{4}huo^{4}wai^{4} tsu^{3}fu^{4} "grandfather of one's own children"
2. "mu^{3}ch'in^{0}" {"/mu^{3}Cin/"} "mother"	(*a*) chang^{3}i^{2}pei^{4}tê^{0}chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} ("ancestor or progenitor one generation removed") "parent" (*b*) wai^{4}tsu^{3}fu^{4}mu^{3}tê^{0}nü^{3}êrh^{2} "daughter of maternal grandparents" (*c*) ma^{4}ma^{0} "mother or step-mother" (*d*) nü^{3}tsu^{3}hsien^{1} "female ancestor" (*e*) tzŭ^{4}chi^{3}hai^{2}tzŭ^{0}tê^{0}tou^{3}mu^{3}huo^{4}wai^{4} tsu^{3}mu^{3} "grandmother of one's own children"
3. "tsu^{3}fu^{4}" {"/zu^{3}fu^{4}/"} "paternal grandfather"	(*a*) fu^{4}ch'in^{0}tê^{0}, pi^{3}fu^{4}ch'in^{0}chang^{3}i^{2}pei^{4} tê^{0}, chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "father's parent" (*b*) tsêng^{1}tsu^{3}fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "son of father's paternal grandparents" (*c*) fu^{4}ch'in^{0}tê^{0}pa^{4}pa^{0} "father's father or step-father"

ITEM	FEATURES
	(*d*) fu^{4}ch'in^{0}tê^{0}nan^{2}tsu^{3}hsien^{1} "father's male ancestor" (*e*) pi^{3}tzŭ^{4}chi^{3}chang^{3}liang^{3}pei^{4}tê^{0}nan^{2} tsu^{3}hsien^{1} ("male ancestor two generations removed") i.e. "grandfather"
4. "tsu^{3}mu^{3}" {"/zu^{3}mu^{3}/"} "paternal grandmother"	(*a*) fu^{4}ch'in^{0}tê^{0}, pi^{3}fu^{4}ch'in^{0}chang^{3}i^{2} pei^{4}tê^{0}, chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "father's parent" (*b*) fu^{4}ch'in^{0}tê^{0}ma^{4}ma^{0} "father's mother or step-mother" (*c*) fu^{4}ch'in^{0}tê^{0}nü^{3}tsu^{3}hsien^{1} "father's female ancestor" (*d*) pi^{3}tzŭ^{4}chi^{3}chang^{3}liang^{3}pei^{4}tê^{0}nü^{3} tsu^{3}hsien^{1} "grandmother"
5. "wai^{4}tsu^{3}fu^{4}" {"/uai^{4}zu^{3}fu^{4}/"} "maternal grandfather"	(*a*) mu^{3}ch'in^{0}tê^{0}, pi^{3}mu^{3}ch'in^{0}chang^{3}i^{2} pei^{4}tê^{0}, chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "mother's parent" (*b*) wai^{4}tsêng^{1}tsu^{3}fu^{4}mu^{3}tê^{0}êrh^{2}tzü^{0} "son of mother's grandparents or of father's maternal grandparents" (*c*) mu^{3}ch'in^{0}tê^{0}pa^{4}pa^{0} "mother's father or step-father" (*d*) mu^{3}ch'in^{0}tê^{0}nan^{2}tsu^{3}hsien^{1} "mother's male ancestor" (*e*) pi^{3}tzŭ^{4}chi^{3}chang^{3}liang^{3}pei^{4}tê^{0}nan^{2} tsu^{3}hsien^{1} "grandfather"
6. "wai^{4}tsu^{3}mu^{3}" {"/uai^{4}zu^{3}mu^{3}/"} "maternal grandmother"	(*a*) mu^{3}ch'in^{0}tê^{0}, pi^{3}mu^{3}ch'in^{0}chang^{3}i^{2} pei^{4}tê^{0}, chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "mother's parent" (*b*) mu^{3}ch'in^{0}tê^{0}ma^{4}ma^{0} "mother's mother or step-mother" (*c*) mu^{3}ch'in^{0}tê^{0}nü^{3}tsu^{3}hsien^{1} "mother's female ancestor"

ITEM	FEATURES
	(*d*) pi^{3}tzŭ^{4}chi^{3}chang^{3}liang^{3}pei^{4}tê^{0}nü^{3} tsu^{3}hsien^{1} "grandmother"
7. "tsêng^{1}tsu^{3}fu^{4}" {"/zeŋ^{1}zu^{3}fu^{4}/"} "father's paternal grandfather"	(*a*) tsu^{3}fu^{4}tê^{0}, pi^{3}tsu^{3}fu^{4}chang^{3}i^{2}pei^{4}tê^{0}, chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "paternal grandfather's parent" (*b*) kao^{1}tsêng^{1}tsu^{3}fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "son of paternal grandfather's paternal grandparents" (*c*) tsu^{3}fu^{4}tê^{0}pa^{4}pa^{0} "paternal grandfather's father or step-father" (*d*) tsu^{3}fu^{4}tê^{0}nan^{2}tsu^{3}hsien^{1} "paternal grandfather's male ancestor" (*e*) pi^{3}tzŭ^{4}chi^{3}chang^{3}san^{1}pei^{4}tê^{0}nan^{2} tsu^{3}hsien^{1} "great-grandfather"
8. "tsêng^{1}tsu^{3}mu^{3}" {"/zeŋ^{1}zu^{3}mu^{3}/"} "father's paternal grandmother"	(*a*) tsu^{3}fu^{4}tê^{0}, pi^{3}tsu^{3}fu^{4}chang^{3}i^{2}pei^{4}tê^{0}, chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "paternal grandfather's parent" (*b*) tsu^{3}fu^{4}tê^{0}ma^{4}ma^{0} "paternal grandfather's mother or step-mother" (*c*) tsu^{3}fu^{4}tê^{0}nü^{3}tsu^{3}hsien^{1} "paternal grandfather's female ancestor" (*d*) pi^{3}tzŭ^{4}chi^{3}chang^{3}san^{1}pei^{4}tê^{0}nü^{3}tsu^{3} hsien^{1} "great-grandmother"
9. "wai^{4}tsêng^{1}tsu^{3}fu^{4}" {"/uai^{4}zeŋ^{1}zu^{3}fu^{4}/"} "father's maternal grandfather or mother's grand-father"	(*a*) tsu^{3}mu^{3}, wai^{4}tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3} mu^{3}tê^{0}, pi^{3}t'a^{1}chang^{3}i^{2}pei^{4}tê^{0}, chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "paternal grandmother's or maternal grandparent's parent" (*b*) kao^{1}wai^{4}tsêng^{1}tsu^{3}fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "son of paternal grandmother's

ITEM	FEATURES
	grandparents or maternal grandparent's grandparents"
	(*c*) tsu^{3}mu^{3}, wai^{4}tsu^{3}mu^{3}huo^{4}wai^{4}tsu^{3} fu^{4}tê^{0}pa^{4}pa^{0} "paternal grandmother's or maternal grandparent's father or step-father"
	(*d*) tsu^{3}mu^{3}, wai^{4}tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3} mu^{3}tê^{0}nan^{2}tsu^{3}hsien^{1} "paternal grandmother's or maternal grandparent's male ancestor"
	(*e*) pi^{3}tzŭ^{4}chi^{3}chang^{3}san^{1}pei^{4}tê^{0}nan^{2} tsu^{3}hsien^{1} "great-grandfather"
10. "wai^{4}tsêng^{1}tsu^{3}mu^{3}" {"/uai^{4}zeŋ^{1}zu^{3}mu^{3}/"} "father's maternal grandmother or mother's grandmother"	(*a*) tsu^{3}mu^{3}, wai^{4}tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3} mu^{3}tê^{0}, pi^{3}t'a^{1}chang^{3}i^{2}pei^{4}tê^{0}, chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "paternal grandmother's or maternal grandparent's parent"
	(*b*) tsu^{3}mu^{3}, wai^{4}tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3} mu^{3}tê^{0}ma^{4}ma^{0} "paternal grandmother's or maternal grandparent's mother or step-mother"
	(*c*) tsu^{3}mu^{3}, wai^{4}tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3} mu^{3}tê^{0}nü^{3}tsu^{3}hsien^{1} "paternal grandmother's or maternal grandparent's female ancestor"
	(*d*) pi^{3}tzŭ^{4}chi^{3}chang^{3}san^{1}pei^{4}tê^{0}nü^{3}tsu^{3} hsien^{1} "great-grandmother"
11. "êrh^{2}tzŭ^{0}" {"/eL^{2}z/"} "son"	(*a*) wan^{3}i^{2}pei^{4}tê^{0}chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "child" (*literally:* "direct descendant one generation removed")
	(*b*) nan^{2}hsing^{4}tê^{0}wan^{3}pei^{4}chih^{2}hsi^{4} hsüeh^{3}ch'in^{1} "male descendant"

ITEM	FEATURES
	(*c*) wan^{3}liang^{3}pei^{4}tê^{0}chih^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}fu^{4}ch'in^{0} "father of one's own grandchildren"
12. "nü^{3}êrh^{2}" {"/ny^{3}eL^{2}/"} "daughter" *syn:* "ch'ien^{1}chin^{1}" {"/Cian^{1}Zin^{1}/"} *stylistic variant*, usually polite for "daughter of the person addressed"	(*a*) wan^{3}i^{2}pei^{4}tê^{0}chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} "child" (*literally:* "direct descendant one generation removed")
	(*b*) nü^{3}hsing^{4}tê^{0}wan^{3}pei^{4}chih^{2}hsi^{4} hsüeh^{3}ch'in^{1} "female descendant"
	(*c*) wan^{3}liang^{3}pei^{4}tê^{0}chih^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}mu^{3}ch'in^{0} "mother of one's own grandchildren"
13. "sun^{1}tzŭ^{0}" {"/sun^{1}z/"} "son's son"	(*a*) hai^{2}tzŭ^{0}tê^{0}êrh^{2}tzŭ^{0} "grandson"
	(*b*) êrh^{2}tzŭ^{0}tê^{0}hai^{2}tzŭ^{0} "child of one's own son"
14. "sun^{1}nü^{3}" {"/sun^{1}ny^{3}/"} "son's daughter"	(*a*) hai^{2}tzŭ^{0}tê^{0}nü^{3}êrh^{2} "grand-daughter"
	(*b*) êrh^{2}tzŭ^{0}tê^{0}hai^{2}tzŭ^{0} "child of one's own son"
15. "wai^{4}sun^{1}" {"/uai^{4}sun^{1}/"} "daughter's son"	(*a*) hai^{2}tzŭ^{0}tê^{0}êrh^{2}tzŭ^{0} "grandson"
	(*b*) nü^{3}êrh^{2}tê^{0}hai^{2}tzŭ^{0} "child of one's own daughter"
16. "wai^{4}sun^{1}nü^{3} {"/uai^{4}sun^{1}ny^{3}/"} "daughter's daughter"	(*a*) hai^{2}tzŭ^{0}tê^{0}nü^{3}êrh^{2} "grand-daughter"
	(*b*) nü^{3}êrh^{2}tê^{0}hai^{2}tzŭ^{0} "child of one's own daughter"
17. "tsêng^{1}sun^{1}" {"/zeŋ^{1}sun^{1}/"} "son's son's son"	(*a*) sun^{1}tzŭ^{0}tê^{0}hai^{2}tzŭ^{0} "child of one's son's son"
	(*b*) nan^{2}hsing^{4}wan^{3}san^{1}pei^{4}tê^{0}chih^{2}hsi^{4} hsüeh^{3}ch'in^{1} "great-grandson" (*literally:* "male descendant three generations removed")

ITEM	FEATURES
18. "tsêng^{1}sun^{1}nü^{3}" {"/zeŋ^{1}sun^{1}ny^{3}/"} "son's son's daughter"	(*a*) sun^{1}tzŭ^{0}tê^{0}hai^{2}tzŭ^{0} "child of one's son's son" (*b*) nü^{3}hsing^{4}wan^{3}san^{1}pei^{4}tê^{0}chih^{2}hsi^{4} hsüeh^{3}ch'in^{1} "great-grand-daughter" (*literally:* "female descendant three generations removed")
19. "wai^{4}tsêng^{1}sun^{1}" {"/uai^{4}zeŋ^{1}sun^{1}/"} "son's daughter's son or daughter's grandson"	(*a*) sun^{1}nü^{3}, wai^{4}sun^{1}huo^{4}wai^{4}sun^{1}nü^{3} tê^{0}hai^{2}tzŭ^{0} "child of one's son's daughter or grandchild of one's daughter" (*b*) nan^{2}hsing^{4}wan^{3}san^{1}pei^{4}tê^{0}chih^{2}hsi^{4} hsüeh^{3}ch'in^{1} "great-grandson"
20. "wai^{4}tsêng^{1}sun^{1}nü^{3}" {"/uai^{4}zeŋ^{1}sun^{1}ny^{3}/"} "son's daughter's daughter or daughter's grand-daughter"	(*a*) sun^{1}nü^{3}, wai^{4}sun^{1}huo^{4}wai^{4}sun^{1}nü^{3} tê^{0}hai^{2}tzŭ^{0} "child of one's son's daughter or grandchild of one's daughter" (*b*) nü^{3}hsing^{4}wan^{3}san^{1}pei^{4}tê^{0}chih^{2}hsi^{4} hsüeh^{3}ch'in^{1} "great-grand-daughter"
21. "hsi^{2}fu^{4}êrh^{2}" {"/Si^{2}fuL^{3}/"} "daughter-in-law" *syn.:* "êrh^{2}hsi^{2}" {"/eL^{2}Si^{2}/"}	(*a*) hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "one's child's spouse" (*b*) nan^{2}hsing^{4}wan^{3}pei^{4}chih^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of a male descendant" (*c*) wan^{3}liang^{3}pei^{4}chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} tê^{0}mu^{3}ch'in^{1} "mother of one's own grandchildren"
22. "nü^{3}hsü^{4}" {"/ny^{3}Sy^{4}/"} "son-in-law"	(*a*) hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "one's child's spouse" (*b*) nü^{3}hsing^{4}wan^{3}pei^{4}chih^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}chang^{4}fu^{0} "husband of a female descendant"

ITEM	FEATURES
	(*c*) wan^{3}liang^{3}pei^{4}chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} tê^{0}fu^{4}ch'in^{0} "father of one's own grandchildren"
23. "sun^{1}hsi^{2}fu^{0}" {"/sun^{1}Si^{2}fu/"} "wife of son's son"	(*a*) hai^{2}tzŭ^{0}êrh^{2}tzŭ^{0}tê^{0}ch'i^{1}tzŭ^{0} "wife of one's grandson" (*b*) êrh^{2}tzŭ^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of one's son's child"
24. "sun^{1}nü^{3}hsü^{4}" {"/sun^{1}ny^{3}Sy^{4}/"} "husband of son's daughter"	(*a*) hai^{2}tzŭ^{0}nü^{3}êrh^{2}tê^{0}chang^{4}fu^{1} "husband of one's grand-daughter" (*b*) êrh^{2}tzŭ^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of one's son's child"
25. "wai^{4}sun^{1}hsi^{2}fu^{0}" {"/uai^{4}sun^{1}Si^{2}fu/"} "wife of daughter's son"	(*a*) hai^{2}tzŭ^{0}êrh^{2}tzŭ^{0}tê^{0}ch'i,^{1}tzŭ^{0} "wife of one's grandson" (*b*) nü^{3}êrh^{2}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of one's daughter's child"
26. "wai^{4}sun^{1}nü^{3}hsü^{4}" {"/uai^{4}sun^{1}ny^{3}Sy^{4}/"} "husband of daughter's daughter"	(*a*) hai^{2}tzŭ^{0}nü^{3}êrh^{2}tê^{0}chang^{4}fu^{0} "husband of one's grand-daughter" (*b*) nü^{3}êrh^{2}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of one's daughter's child"
27. "tsêng^{1}sun^{1}hsi^{2}fu^{0}" {"/zeŋ^{1}sun^{1}Si^{2}fu/"} "wife of son's son's son"	(*a*) sun^{1}tzŭ^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of child of one's son's son" (*b*) wan^{3}san^{1}pei^{4}chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} tê^{0}ch'i^{1}tzŭ^{0} "wife of great-grandson"
28. "tsêng^{1}sun^{1}nü^{3}hsü^{4}" {"/zeŋ^{1}sun^{1}ny^{3}Sy^{4}/"} "husband of son's son's daughter"	(*a*) sun^{1}tzŭ^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of child of one's son's son" (*b*) wan^{3}san^{1}pei^{4}chih^{2}hsi^{4}hsüeh^{3}ch'in^{1} tê^{0}chang^{4}fu^{0} "husband of great-grand-daughter"
29. "wai^{4}tsêng^{1}sun^{1} hsi^{2}fu^{0}" {"/uai^{4}zeŋ^{1}sun^{1} Si^{2}fu/"} "wife of son's	(*a*) sun^{1}nü^{3}, wai^{4}sun^{1}huo^{4}wai^{4}sun^{1}nü^{3} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of one's son's daughter's child or of one's daughter's grand-child"

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daughter's son or daughter's grandson"	(*b*) wan^{3}san^{1}pei^{4}tê^{0}chih^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of great grandson"
30. "wai^{4}tsêng^{1}sun^{1}nü^{3} hsü^{4}" {"/uai^{4}zeŋ^{1}sun^{1} ny^{3}Sy^{4}/"} "husband of son's daughter's daughter or of daughter's grand-daughter"	(*a*) sun^{1}nü^{3}, wai^{4}sun^{1}huo^{4}wai^{4}sun^{1}nü^{3} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of one's son's daughter's child or of one's daughter's grand-child" (*b*) wan^{3}san^{1}pei^{4}tê^{0}chih^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}chang^{4}fu^{0} "husband of great-grand-daughter"
31. "ko^{1}ko^{0}" {"/ge^{1}ge/"} "elder brother"	(*a*) fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "son of one's own parents" (*b*) fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4} tê^{0}hai^{2}tzŭ^{0} "elder sibling" (*c*) nan^{2}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4} tê^{0}, p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "male collateral blood-relation of the same generation, but older than oneself"
32. "ti^{4}ti^{0}" {"/di^{4}di/"} "younger brother"	(*a*) fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "son of one's own parents" (*b*) fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}tzŭ^{0}chi^{3}hsiao^{3} tê^{0}hai^{2}tzŭ^{0} "younger sibling" (*c*) nan^{2}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3} hsiao^{3}tê^{0}, p'ing^{2} pei^{4}p'ang^{2}hsi^{4}hsüeh^{3} ch'in^{1} "male collateral blood-relation of the same generation, but younger than oneself"
33. "chieh^{3}chieh^{0}" {"/Zie^{3}Zie/"} "elder sister"	(*a*) fu^{4}mu^{3}tê^{0}nü^{3}êrh^{2} "daughter of one's own parents" (*b*) fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4} tê^{0}hai^{2}tzŭ^{0} "elder sibling"

ITEM	FEATURES
	(*c*) nü^{3}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4} tê^{0}, p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "female collateral blood-relation of the same generation, but older than oneself"
34. "mei^{4}mei^{0}" {"/mei^{4}mei/"} "younger sister"	(*a*) fu^{4}mu^{3}tê^{0}nü^{3}êrh^{2} "daughter of one's own parents"
	(*b*) fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3} tê^{0}hai^{2}tzŭ^{0} "younger sibling"
	(*c*) nü^{3}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3} tê, p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "female collateral blood-relation of the same generation, but younger than oneself"
35. "sao^{3}tzŭ^{0}" {"/sau^{3}z/"} "elder brother's wife" *syn.*: "sao^{3}sao^{0}" {"/sau^{3}sau/"}	(*a*) fu^{4}mu^{3}tê^{0}hsi^{2}fu^{4}êrh^{2} "daughter-in-law of one's own parents"
	(*b*) fu^{4}mu^{3}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0} hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of elder sibling"
	(*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of collateral blood-relation of the same generation, but older than oneself"
36. "ti^{4}mei^{4}" {"/di^{4}mei^{4}/"} "younger brother's wife" *syn.*: "ti^{4}hsi^{2}" {"/di^{4}Si^{2}/"}	(*a*) fu^{4}mu^{3}tê^{0}hsi^{2}fu^{4}êrh^{2} "daughter-in-law of one's own parents"
	(*b*) fu^{4}mu^{3}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of younger sibling"
	(*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}p'ing^{2} pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1} tzŭ^{0} "wife of collateral blood-relation of

ITEM	FEATURES
	the same generation, but younger than oneself"
37. "chieh^{3}fu^{1}" {"/Zie^{3}fu^{1}/"} "elder sister's husband"	(*a*) fu^{4}mu^{3}tê^{0}nü^{3}hsü^{4} "son-in-law of one's own parents" (*b*) fu^{4}mu^{3}nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}hai^{2} tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of elder sibling" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}chang^{4}fu^{0} "husband of collateral blood-relation of the same generation, but older than oneself"
38. "mei^{4}fu^{1}" {"/mei^{4}fu^{1}/"} "younger sister's husband"	(*a*) fu^{4}mu^{3}tê^{0}nü^{3}hsü^{4} "son-in-law of one's own parents" (*b*) fu^{4}mu^{3}nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0} hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of younger sibling" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}p'ing^{2} pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}chang^{4} fu^{0} "husband of collateral blood-relation of the same generation, but younger than oneself"
39. "chih^{2}êrh^{2}" {"/ž^{2}eL^{2}/"} "brother's son" *syn.*: "chih^{2}tzŭ^{0}" {"/ž^{2}z/"}	(*a*) fu^{4}mu^{3}tê^{0}sun^{1}tzŭ^{0} "son of one's parents' son" (*N.B.* this may denote one's own son) (*b*) nan^{2}hsing^{4}tê^{0}wan^{3}i^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "male collateral blood-relation one generation below oneself" (*c*) ko^{1}ko^{0}huo^{4}ti^{4}ti^{0}tê^{0}hai^{2}tzŭ^{0} "brother's child"
40. "chih^{2}nü^{3}" {"/ž^{2}ny^{3}/"} "brother's daughter"	(*a*) fu^{4}mu^{3}tê^{0}sun^{1}nü^{3} "daughter of one's parents' son" (*b*) nü^{3}hsing^{4}tê^{0}wan^{3}i^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}

ITEM	FEATURES
	"female collateral blood-relation one generation below oneself"
	(*c*) ko^{1}ko^{0}huo^{4}ti^{4}ti^{0}tê^{0}hai^{2}tzŭ^{0} "brother's child"
41. "wai^{4}shêng^{1}" {"/uai^{4}šeŋ^{1}/"} "sister's son"	(*a*) fu^{4}mu^{3}tê^{0}wai^{4}sun^{1} "son of one's parents' daughter"
	(*b*) nan^{2}hsing^{4}tê^{0}wan^{3}i^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "male collateral blood-relation one generation below oneself"
	(*c*) chieh^{3}chieh^{0}huo^{4}mei^{4}mei^{0}tê^{0}hai^{2}tzŭ^{0} "sister's child"
42. "wai^{4}shêng^{1}nü^{3}" {"/uai^{4}šeŋ^{1}ny^{3}/"} "sister's daughter"	(*a*) fu^{4}mu^{3}tê^{0}wai^{4}sun^{1}nü^{3} "daughter of one's parents' daughter"
	(*b*) nü^{3}hsing^{4}tê^{0}wan^{3}i^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "female collateral blood-relation one generation below oneself"
	(*c*) chieh^{3}chieh^{0}huo^{4}mei^{4}mei^{0}tê^{0}hai^{2}tzŭ^{0} "sister's child"
43. "chih^{2}êrh^{2}hsi^{2}" {"/ž^{2}eL^{2}Si^{2}/"} "wife of brother's son"	(*a*) fu^{4}mu^{3}tê^{0}sun^{1}hsi^{2}fu^{4} "wife of one's parents' son's son" (*N.B.* this could denote one's own son's wife)
syn.: "chih^{2}hsi^{2}" {"/ž^{2}Si^{2}/"}	(*b*) wan^{3}i^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0} ch'i^{1}tzŭ^{0} "wife of (male) collateral blood-relation one generation below oneself"
	(*c*) ko^{1}ko^{0}huo^{4}ti^{4}ti^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of brother's child"
44. "chih^{2}nü^{3}hsü^{4}" {"/ž^{2}ny^{3}Sy^{4}/"} "husband of brother's daughter"	(*a*) fu^{4}mu^{3}tê^{0}sun^{1}nü^{3}hsü^{4} "husband of one's parents' son's daughter"
	(*b*) wan^{3}i^{2}pei^{4}tê^{0}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} tê^{0}chang^{4}fu^{0}

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	"husband of collateral blood-relation one generation below oneself"
	(*c*) ko^{1}ko^{0}huo^{4}ti^{4}ti^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of brother's child"
45. "wai^{4}shêng^{1}hsi^{2}" {"/uai^{4}šeŋ^{1}Si^{2}/"} "wife of sister's son"	(*a*) fu^{4}mu^{3}tê^{0}wai^{4}sun^{1}nü^{3}hsü^{4} "wife of one's parents' daughter's son"
	(*b*) wan^{3}i^{2}pei^{4}tê^{0}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} tê^{0}ch'i^{1}tzŭ^{0} "wife of collateral blood-relation one generation below oneself"
	(*c*) chieh^{3}chieh^{0}huo^{4}mei^{4}mei^{0}hai^{2}tzŭ^{0} tê^{0}p'ei^{4}ou^{3} "spouse of sister's child"
46. "wai^{4}shêng^{1}nü^{3}hsü^{4}" {"/uai^{4}šeŋ^{1}ny^{3}Sy^{4}/"} "husband of sister's daughter"	(*a*) fu^{4}mu^{3}tê^{0}wai^{4}sun^{1}nü^{3}hsü^{4} "husband of one's parents' daughter's daughter"
	(*b*) wan^{3}i^{2}pei^{4}tê^{0}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} tê^{0}chang^{4}fu^{0} "husband of collateral blood-relation one generation below oneself"
	(*c*) chieh^{3}chieh^{0}huo^{4}mei^{4}mei^{0}hai^{2}tzŭ^{0} tê^{0}p'ei^{4}ou^{3} "spouse of sister's child"
47. "chih^{2}sun^{1}" {"/ž^{2}sun^{1}/"} "brother's grandson"	(*a*) fu^{4}mu^{3}êrh^{2}tzŭ^{0}tê^{0}sun^{1}tzŭ^{0}huo^{4}wai^{4} sun^{1} "one's parents' son's grandson" (*N.B.* this could denote one's own grandson)
	(*b*) nan^{2}hsing^{4}wan^{3}liang^{3}pei^{4}tê^{0}p'ang^{2} hsi^{4}hsüeh^{3}ch'in^{1} "male collateral blood-relation two generations below oneself"
	(*c*) chih^{3}êrh^{2}huo^{4}chih^{2}nü^{3}tê^{0}hai^{2}tzŭ^{0} "brother's grandchild"

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48. "chih^{2}sun^{1}nü^{3}" {"/ž^{2}sun^{1}ny^{3}/"} "brother's granddaughter"	(*a*) fu^{4}mu^{3}êrh^{2}tzŭ^{0}tê^{0}sun^{1}nü^{3}huo^{4}wai^{4} sun^{1}nü^{3} "one's parents' son's granddaughter" (*b*) nü^{3}hsing^{4}wan^{3}liang^{3}pei^{4}tê^{0}p'ang^{2} hsi^{4}hsüeh^{3}ch'in^{1} "female collateral blood-relation two generations below oneself" (*c*) chih^{2}êrh^{2}huo^{4}chih^{2}nü^{3}tê^{0}hai^{2}tzŭ^{0} "brother's grandchild"
49. "shêng^{1}sun^{1}" {"/šeŋ^{1}sun^{1}/"} "sister's grandson"	(*a*) fu^{4}mu^{3}nü^{3}êrh^{2}tê^{0}sun^{1}tzŭ^{0}huo^{4}wai^{4} sun^{1} "one's parents' daughter's grandson" (*b*) nan^{2}hsing^{4}wan^{3}liang^{3}pei^{4}tê^{0}p'ang^{2} hsi^{4}hsüeh^{3}ch'in^{1} "male collateral blood-relation two generations below oneself" (*c*) wai^{4}shêng^{1}huo^{4}wai^{4}shêng^{1}nü^{3}tê^{0} hai^{2}tzŭ^{0} "sister's grandchild"
50. "shêng^{1}sun^{1}nü^{3}" {"/šeŋ^{1}sun^{1}ny^{3}/"} "sister's granddaughter"	(*a*) fu^{4}mu^{3}nü^{3}êrh^{2}tê^{0}sun^{1}nü^{3}huo^{4}wai^{4} sun^{1}nü^{3} "one's parents' daughter's granddaughter" (*b*) nü^{3}hsing^{4}wan^{3}liang^{3}pei^{4}tê^{0}p'ang^{2} hsi^{4}hsüeh^{3}ch'in^{1} "female collateral blood-relation two generations below oneself" (*c*) wai^{4}shêng^{1}huo^{4}wai^{4}shêng^{1}nü^{3}tê^{0} hai^{2}tzŭ^{0} "sister's grandchild"
51. "chih^{2}sun^{1}hsi^{2}" {"/ž^{2}sun^{1}Si^{2}/"} "wife of brother's grandson"	(*a*) fu^{4}mu^{3}êrh^{2}tzŭ^{0}tê^{0}sun^{1}hsi^{2}fu^{4}huo^{4} sun^{1}hsi^{2}fu^{4} "wife of one's parents' son's grandson"

ITEM	FEATURES
	(*b*) wan^{3}liang^{3}pei^{4}tê^{0}p'ang^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of collateral blood-relation two generations below oneself"
	(*c*) chih^{2}êrh^{2}huo^{4}chih^{2}nü^{3}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of one's brother's grand-child"
52. "chih^{2}sun^{1}nü^{3}hsü^{4}" {"/ž^{2}sun^{1}ny^{3}Sy^{4}/"} "husband of brother's grand-daughter"	(*a*) fu^{4}mu^{3}êrh^{2}tzŭ^{0}tê^{0}sun^{1}nü^{3}hsü^{4}huo^{4} wai^{4}sun^{1}nü^{3}hsü^{4} "husband of one's parents' son's grand-daughter"
	(*b*) wan^{3}liang^{3}pei^{4}tê^{0}p'ang^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}chang^{4}fu^{0} "husband of collateral blood-relation two generations below oneself"
	(*c*) chih^{2}êrh^{2}huo^{4}chih^{2}nü^{3}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of one's brother's grand-child"
53. "shêng^{1}sun^{1}hsi^{2}" {"/šeŋ^{1}sun^{1}Si^{2}/"} "wife of sister's grandson"	(*a*) fu^{4}mu^{3}nü^{3}êrh^{2}tê^{0}sun^{1}hsi^{2}fu^{4}huo^{4} wai^{4}sun^{1}hsi^{2}fu^{4} "wife of one's parents' daughter's grandson"
	(*b*) wan^{3}liang^{3}pei^{4}tê^{0}p'ang^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of collateral blood-relation two generations below oneself"
	(*c*) wai^{4}shêng^{1}huo^{4}wai^{4}shêng^{1}nü^{3}hai^{2} tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of one's sister's grandchild"
54. "shêng^{1}sun^{1}nü^{3}hsü^{4}" {"/šeŋ^{1}sun^{1}ny^{3}Sy^{4}/"} "husband of sister's grand-daughter"	(*a*) fu^{4}mu^{3}nü^{3}êrh^{2}tê^{0}sun^{1}nü^{3}hsü^{4}huo^{4} wai^{4}sun^{1}nü^{3}hsü^{4} "husband of one's parents' daughter's grand-daughter"

ITEM	FEATURES
	(*b*) wan^{3}liang^{3}pei^{4}tê^{0}p'ang^{2}hsi^{2}hsüeh^{3} ch'in^{1}tê^{0}chang^{4}fu^{0} "husband of collateral blood-relation two generations below oneself"
	(*c*) wai^{4}shêng^{1}huo^{4}wai^{4}shêng^{1}nü^{3}hai^{2} tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of one's sister's grandchild"
55. "po^{2}fu^{4}" {"/bue^{2}fu^{4}/"} "father's elder brother" *syn.*: "po^{2}po^{0}" {"/bue^{2}bue/"} (a homonym of "po^{2}po^{0}" is used for addressing one's father's older friends)	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4} tê^{0}, nan^{2}hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "father's male collateral blood-relation of the same generation as, but older than, father"
	(*b*) tsu^{3}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4} tê^{0}, hai^{2}tzŭ^{0} "father's elder sibling"
	(*c*) shu^{2}fu^{4}tê^{0}ko^{1}ko^{0} "elder brother of father's younger brother"
56. "shu^{2}fu^{4}" {"/šu^{2}fu^{4}/"} "father's younger brother" *syn.*: "shu^{2}shu^{0}" {"/šu^{2}šu/"} (a homonym of "shu^{2}shu^{0}" is used for addressing one's father's younger friends)	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0} hsiao^{3}tê^{0}, nan^{2}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "father's male collateral blood-relation of the same generation as, but younger than, father"
	(*b*) tsu^{3}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0} hsiao^{3}tê^{0}hai^{2}tzŭ^{0} "father's younger sibling"
	(*c*) po^{2}fu^{4}tê^{0}ti^{4}ti^{0} "younger brother of father's elder brother"
57. "ku^{1}ma^{1}" {"/gu^{1}ma^{1}/"} "father's sister" *syn.*: "ku^{1}ku^{0}" {"/gu^{1}gu/"}	(*a*) fu^{4}ch'in^{1}tê^{0}nü^{3}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "father's female collateral blood-relation of the same generation as father"

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"ku^{1}mu^{3}" {"/gu^{1}mu^{3}/"}	(*b*) tsu^{3}fu^{4}tê^{0}hai^{2}tzŭ^{0} "paternal grandfather's child"
58. "po^{2}mu^{3}" {"/bue^{2}mu^{3}/"} "father's elder brother's wife"	(*a*) fu^{4}ch'in^{1}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4} tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{0} tê^{0}ch'i^{1}tzŭ^{0} "wife of father's collateral blood-relation of the same generation as, but older than, father" (*b*) tsu^{3}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's elder sibling" (*c*) shu^{2}fu^{4}tê^{0}sao^{3}tzŭ^{0} "wife of father's younger brother's elder brother"
59. "shu^{2}mu^{3}" {"/šu^{2}mu^{3}/"} "father's younger brother's wife" *syn.:* "shên^{3}mu^{3}" {"/šen^{3}mu^{3}/"} shên^{3}shen^{0}" {"/šen^{3}šen/"} (a *homonym* of "shên^{3}shen^{0}" is also used by the wife of a younger brother to address the wife of an elder brother)	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0} hsiao^{3}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of father's collateral blood-relation of the same generation as, but younger than, father" (*b*) tsu^{3}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{1} hsiao^{3}tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's younger sibling" (*c*) po^{2}fu^{4}tê^{0}ti^{4}hsi^{2} "wife of father's elder brother's younger brother"
60. "ku^{1}fu^{1}" {"/gu^{1}fu^{1}/"} "husband of father's sister" *syn.:* "ku^{1}chang^{4}" {"/gu^{1}žaŋ^{4}/"}	(*a*) fu^{4}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{0}tê^{0}chang^{4}fu^{0} "husband of father's collateral blood-relation of the same generation as father" (*b*) tsu^{3}fu^{4}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's sibling"

ITEM	FEATURES
61. "t'ang^{2}ko^{1}" {"/taŋ^{2}ge^{1}/"} "father's brother's son, older than oneself"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}êrh^{2}tzŭ^{0} or *syn.* fu^{4}ch'in^{0}tê^{0}chih^{2}êrh^{2} "father's brother's son" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3} tzŭ^{4}chi^{3}ta^{4}tê^{0}hai^{2}tzŭ^{0} "father's brother's child, older than oneself" (*c*) nan^{2}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4} tê^{0}, p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "male collateral blood-relation of the same generation but older than oneself"
62. "t'ang^{2}ti^{4}" {"/taŋ^{2}di^{4}/"} "father's brother's son, younger than oneself"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}êrh^{2}tzŭ^{0} or *syn.* fu^{4}ch'in^{1}tê^{0}chih^{2}êrh^{2} "father's brother's son" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3} tzŭ^{4}chi^{3}hsiao^{3}tê^{0}, hai^{2}tzŭ^{0} "father's brother's child, younger than oneself" (*c*) nan^{2}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3} hsiao^{3}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "male collateral blood-relation of the same generation but younger than oneself"
63. "t'ang^{2}chieh^{3}" {"/taŋ^{2}Zie^{3}/"} "father's brother's daughter, older than oneself"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}nü^{3}êrh^{2} or *syn.* fu^{4}ch'in^{0}tê^{0}chih^{2}nü^{3} "father's brother's daughter" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3} tzŭ^{4}chi^{3}ta^{4}tê^{0}hai^{2}tzŭ^{0} "father's brother's child, older than oneself" (*c*) nü^{3}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4} tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "female collateral blood-relation of the same generation but older than oneself"

ITEM	FEATURES
64. "t'ang^{2}mei^{4}" {"/taŋ^{2}mei^{4}/"} "father's brother's daughter, younger than oneself"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}nü^{3}êrh^{2} or *syn.* fu^{4}ch'in^{0}tê^{0}chih^{2}nü^{3} "father's brother's daughter" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê, nien^{2}chi^{0}pi^{3} tzŭ^{4}chi^{3}hsiao^{3}tê^{0}hai^{2}tzŭ^{0} "father's brother's child, younger than oneself" (*c*) nü^{3}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3} tê, p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "female collateral blood-relation of the same generation but younger than oneself"
65. "t'ang^{2}sao^{3}" {"/taŋ^{2}sau^{3}/"} "wife of father's brother's son older than oneself"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}hsi^{2}fu^{4}êrh^{2} or *syn.* fu^{4}ch'in^{0}tê^{0}chih^{2}hsi^{2} "wife of father's brother's son" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê, nien^{2}chi^{0}pi^{3} tzŭ^{4}chi^{3}ta^{4}tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's brother's child older than oneself" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of collateral blood-relation of same generation but older than oneself"
66. "t'ang^{2}ti^{4}hsi^{2}" {"/taŋ^{2}di^{4}Si^{2}/"} "wife of father's brother's son younger than oneself"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}hsi^{2}fu^{4}êrh^{2} or *syn.* fu^{4}ch'in^{0}tê^{0}chih^{2}hsi^{2} "wife of father's brother's son" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4} chi^{3}hsiao^{3}tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's brother's child younger than oneself" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}p'ing^{2} pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1} tzŭ^{0} "wife of collateral blood-relation of same generation but younger than oneself"

ITEM	FEATURES
67. "t'ang^{2}chieh^{3}fu^{1}" {"/taŋ^{2}Zie^{3}fu^{1}/"} "husband of father's daughter older than oneself"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}nü^{3}hsü^{4} or *syn.* fu^{4}ch'in^{0}tê^{0}chih^{2}nü^{3}hsü^{4} "husband of father's brother's daughter" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3} tzŭ^{4}chi^{3}ta^{4}tê^{0}hai^{2}tzù^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's brother's child" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}chang^{4}fu^{0} "husband of collateral blood-relation of same generation but older than oneself"
68. "t'ang^{2}mei^{4}fu^{1}" {"/taŋ^{2}mei^{4}fu^{1}/"} "husband of father's brother's daughter younger than oneself"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}nü^{3}hsü^{4} or *syn.* fu^{4}ch'in^{0}tê^{0}chih^{2}nü^{3}hsü^{4} "husband of father's brother's daughter" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3} tzŭ^{4}chi^{3}hsiao^{3}tê^{0}hai^{2}tzù^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's brother's child" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}p'ing^{2} pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}chang^{4}fu^{0} "husband of collateral blood-relation of same generation but younger than oneself"
69. "piao^{3}ko^{1}" {"/biau^{3}ge^{1}/"} "father's sister's or mother's sibling's son, older than oneself"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}êrh^{2} tzŭ^{0} "father's sister's or mother's sibling's son" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}, nien^{2} chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}hai^{2}tzŭ^{0} "father's sister's or mother's sibling's child, older than oneself" (*c*) nan^{2}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4} tê^{0}, p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "male collateral blood-relation of the same generation but older than oneself"

ITEM	FEATURES
70. "piao^{3}ti^{4}" {"/biau^{3}di^{4}/"} "father's sister's or mother's sibling's son, younger than oneself"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}êrh^{2} tzŭ^{0} "father's sister's or mother's sibling's son" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}, nien^{2} chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}hai^{2}tzŭ^{0} "father's sister's or mother's sibling's child younger than oneself" (*c*) nan^{2}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3} hsiao^{3}tê^{0}, p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "male collateral blood-relation of the same generation but younger than oneself"
71, "piao^{3}chieh^{3}" {"/biau^{3}Zie^{3}/"} "father's sister's or mother's sibling's daughter, older than oneself"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}nü^{3} êrh^{2} "father's sister's or mother's sibling's daughter" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}, nien^{2} chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}hai^{2}tzŭ^{0} "father's sister's or mother's sibling's child, older than oneself" (*c*) nü^{3}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4} tê^{0}, p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "female collateral blood-relation of the same generation, but older than oneself"
72. "piao^{3}mei^{4}" {"/biau^{3}mei^{4}/"} "father's sister's or mother's sibling's daughter, younger than oneself"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}nü^{3} êrh^{2} "father's sister's or mother's sibling's daughter" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}, nien^{2} chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}hai^{2}tzŭ^{0} "father's sister's or mother's sibling's child, younger than oneself"

ITEM	FEATURES
	(*c*) nü^{3}hsing^{4}, nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3} hsiao^{3}tê^{0}, p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "female collateral blood-relation of the same generation but younger than oneself"
73. "piao^{3}sao^{3}" {"/biau^{3}sau^{3}/"} "wife of father's sister's or mother's sibling's son, older than oneself"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}hsi^{2} fu^{4}êrh^{2} "wife of father's sister's or mother's sibling's son" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}nien^{2} chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of father's sister's or mother's sibling's child, older than oneself" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of collateral blood-relation of the same generation but older than oneself"
74. "piao^{3}ti^{4}hsi^{2}" {"/biau^{3}di^{4}Si^{2}/"} "wife of father's sister's or mother's sibling's son younger than oneself"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}hsi^{2} fu^{4}êrh^{2} "wife of father's sister's or mother's sibling's son" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}, nien^{2} chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of father's sister's or mother's sibling's child, younger than oneself" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}p'ing^{2} pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1} tzŭ^{0} "wife of collateral blood-relation of the same generation but younger than oneself"

ITEM	FEATURES
75. "piao^{3}chieh^{3}fu^{1}" {"/biau^{3}Zie^{3}fu^{1}/"} "husband of father's sister's or mother's sibling's daughter, older than oneself"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}nü^{3} hsü^{4} "husband of father's sister's or mother's sibling's daughter" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}, nien^{2} chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of father's sister's or mother's sibling's child older than oneself" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}ta^{4}tê^{0}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}chang^{4}fuΠ "husband of collateral blood-relation of the same generation but older than oneself"
76. "piao^{3}mei^{4}fu^{1}" {"/biau^{3}mei^{4}fu^{1}/"} "husband of father's sister's or mother's sibling's daughter, younger than oneself"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}nü^{3} hsü^{4} "husband of father's sister's or mother's sibling's daughter" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}tê^{0}, nien^{2} chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of father's sister's or mother's sibling's child, younger than oneself" (*c*) nien^{2}chi^{0}pi^{3}tzŭ^{4}chi^{3}hsiao^{3}tê^{0}p'ing^{2} pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0} chang^{4}fu^{0} "husband of collateral blood relation of the same generation, but younger than oneself"
77. "t'ang^{2}chih^{2}" {"/taŋ^{2}ž^{2}/"} "son of father's brother's son"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}hai^{2}tzŭ^{0}tê^{0}êrh^{2} tzŭ^{0} "father's brother's grandson" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}êrh^{2}tzŭ^{0}tê^{0}hai^{2} tzŭ^{0} "father's brother's son's child"

ITEM	FEATURES
78. "t'ang^{2}chih^{2}nü^{3}" {"/taŋ^{2}ž^{2}ny^{3}/"} "daughter of father's brother's son"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}hai^{2}tzŭ^{0}tê^{0}nü^{3}êrh^{2} "father's brother's grand-daughter" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}êrh^{2}tzŭ^{0}tê^{0}hai^{2} tzŭ^{0} "father's brother's son's child"
79. "t'ang^{2}shêng^{1}" {"/taŋ^{2}šeŋ^{1}/"} "father's brother's daughter's son"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}hai^{2}tzŭ^{0}tê^{0}êrh^{2} tzŭ^{0} "father's brother's grandson" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}nü^{3}êrh^{2}tê^{0}hai^{2}tzŭ^{0} "father's brother's daughter's child"
80. "t'ang^{2}shêng^{1}nü^{3}" {"/taŋ^{2}šeŋ^{1}ny^{3}/"} "father's brother's daughter's daughter"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}hai^{2}tzŭ^{0}tê^{0}nü^{3}êrh^{2} "father's brother's grand-daughter" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}nü^{3}êrh^{2}tê^{0}hai^{2}tzŭ^{0} "father's brother's daughter's child"
81. "t'ang^{2}chih^{2}hsi^{2}" {"/taŋ^{2}ž^{2}Si^{2}/"} "father's brother's son's daughter-in-law"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}hai^{2}tzŭ^{0}tê^{0}hsi^{2}fu^{4} êrh^{2} "father's brother's child's daughter-in-law" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}êrh^{2}tzŭ^{0}tê^{0}hai^{2} tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's brother's son's child"
82. "t'ang^{2}chih^{2}nü^{3}hsü^{4}" {"/taŋ^{2}ž^{2}ny^{3}Sy^{4}/"} "father's brother's son's son-in-law"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}hai^{2}tzŭ^{0}tê^{0}nü^{3}hsü^{4} "father's brother's child's son-in-law" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}êrh^{2}tzŭ^{0}tê^{0}hai^{2} tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's brother's son's child"
83. "t'ang^{2}shêng^{1}hsi^{2}" {"/taŋ^{2}šeŋ^{1}Si^{2}/"} "father's brother's daughter's daughter-in-law"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}hai^{2}tzŭ^{0}tê^{0}hsi^{2}fu^{4} êrh^{2} "father's brother's child's daughter-in-law" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}nü^{3}êrh^{2}tê^{0}hai^{2}tzŭ^{0} tê^{0}p'ei^{4}ou^{3}

ITEM	FEATURES
	"spouse of father's brother's daughter's child"
84. "t'ang^{2}shêng^{1}nü^{3} hsü^{4}" {"/taŋ^{2}šeŋ^{1}ny^{3}Sy^{4}/"} "father's brother's daughter's son-in-law"	(*a*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}hai^{2}tzŭ^{0}tê^{0}nü^{3} hsü^{4} "father's brother's child's son-in-law" (*b*) po^{2}fu^{4}huo^{4}shu^{2}fu^{4}nü^{3}êrh^{2}tê^{0}hai^{2}tzŭ^{0} tê^{0}p'ei^{4}ou^{3} "spouse of father's brother's daughter's child"
85. "piao^{3}chih^{2}" {"/biau^{3}ž^{2}/"} "father's sister's or mother's sibling's son's son"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}hai^{2}tzŭ^{0} tê^{0}êrh^{2}tzŭ^{0} "father's sister's or mother's sibling's grandson" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}êrh^{2}tzŭ^{0} tê^{0}hai^{2}tzŭ^{0} "father's sister's or mother's sibling's son's child"
86. "piao^{3}chih^{2}nü^{3}" {"/biau^{3}ž^{2}ny^{3}/"} "father's sister's or mother's sibling's son's daughter"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}hai^{2}tzŭ^{0} tê^{0}nü^{3}êrh^{2} "father's sister's or mother's sibling's grand-daughter" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}êrh^{2}tzŭ^{0} tê^{0}hai^{2}tzŭ^{0} "father's sister's or mother's sibling's son's child"
87. "piao^{3}shêng^{1}" {"/biau^{3}šeŋ^{1}/"} "father's sister's or mother's sibling's daughter's son"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}hai^{2}tzŭ^{0} tê^{0}êrh^{2}tzŭ^{0} "father's sister's or mother's sibling's grandson" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}nü^{3}êrh^{2} tê^{0}hai^{2}tzŭ^{0} "father's sister's or mother's sibling's daughter's child"

ITEM	FEATURES
88. "piao^{3}shêng^{1}nü^{3}" {"/biau^{3}šeŋ^{1}ny^{3}/"} "father's sister's or mother's sibling's daughter's daughter	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}hai^{2}tzŭ^{0} tê^{0}nü^{3}êrh^{2} "father's sister's or mother's sibling's grand-daughter" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}nü^{3} êrh^{2}tê^{0}hai^{2}tzŭ^{0} "father's sister's or mother's sibling's daughter's child"
89. "piao^{3}chih^{2}hsi^{2}" {"/biau^{3}ž^{2}Si^{2}/"} "father's sister's or mother's siblings son's daughter-in-law	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}hai^{2}tzŭ^{0} tê^{0}hsi^{2}fu^{4}êrh^{2} "father's sister's or mother's sibling's child's daughter-in-law" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}êrh^{2}tzŭ^{0} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's sister's or mother's sibling's son's child"
90. "piao^{3}chih^{2}nü^{3}hsü^{4}" {"/biau^{3}ž^{2}ny^{3}Sy^{4}/"} "father's sister's or mother's sibling's son's son-in-law"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}hai^{2}tzŭ^{0} tê^{0}nü^{3}hsü^{4} "father's sister's or mother's sibling's child's son-in-law" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}êrh^{2}tzŭ^{0} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's sister's or mother's sibling's son's child"
91. "piao^{3}shêng^{1}hsi^{2}" {"/biau^{3}šeŋ^{1}Si^{2}/"} "father's sister's or mother's sibling's daughter's daughter-in-law"	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}hai^{2}tzŭ^{0} tê^{0}hsi^{2}fu^{4}êrh^{2} "father's sister's or mother's sibling's child's daughter-in-law" (*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}nü^{3}êrh^{2} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's sister's or mother's sibling's daughter's child"
92. "piao^{3}shêng^{1}nü^{3}hsü^{4}" {"/biau^{3}šeŋ^{1}ny^{3}Sy^{4}/"} "father's sister's or mother's sibling's	(*a*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}hai^{2}tzŭ^{0} tê^{0}nü^{3}hsü^{4} "father's sister's or mother's sibling's child's son-in-law"

ITEM	FEATURES
daughter's son-in-law"	(*b*) ku^{1}ma^{1}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1}nü^{3}êrh^{2} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of father's sister's or mother's sibling's daughter's child"
93. "chiu^{4}fu^{4}" {"/Ziu^{4}fu^{4}/"} "mother's brother" *syn.:* "chiu^{4}chiu^{0}" {"/Ziu^{4}Zui/"}	(*a*) mu^{3}ch'in^{0}tê^{0}nan^{2}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "mother's male collateral blood-relation of the same generation as mother" (*b*) wai^{4}tsu^{3}fu^{4}mu^{3}tê^{0}hai^{2}tzŭ^{0} "maternal grandparents' child"
94. "i^{2}ma^{1}" {"/i^{2}ma^{1}/"} "mother's sister" *syn.:* "i^{2}mu^{3}" {"/i^{2}mu^{3}/"} "a^{4}i^{2}" {"/a^{4}i^{2}/"}	(*a*) mu^{3}ch'in^{0}tê^{0}nü^{3}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "mother's female collateral blood-relation of the same generation as mother" (*b*) wai^{4}tsu^{3}fu^{4}mu^{3}tê^{0}nü^{3}êrh^{2} "maternal grandparents' daughter"
95. "chiu^{4}mu^{3}" {"/Ziu^{4}mu^{3}/"} "mother's brother's wife" *syn.:* "chiu^{4}ma^{1}" {"/Ziu^{4}ma^{1}/"}	(*a*) mu^{3}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of mother's collateral blood-relation of the same generation as mother" (*b*) wai^{4}tsu^{3}fu^{4}mu^{3}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of maternal grandparents' child"
96. "i^{2}fu^{4}" {"/i^{2}fu^{4}/"} "mother's sister's husband" *syn.:* "i^{2}chang^{4}" {"/i^{2}žaŋ^{4}/"}	(*a*) mu^{3}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}tê^{0}chang^{4}fu^{0} "husband of mother's collateral blood-relation of the same generation as mother" (*b*) wai^{4}tsu^{3}fu^{4}mu^{3}tê^{0}nü^{3}hsü^{4} "maternal grandparents' son-in-law"

ITEM	FEATURES
97. "po²kung¹" {"/bue²guŋ¹/"} "grandfather's elder brother" *syn.:* "po²wêng¹" {"/bue²ueŋ¹/"} (old-fashioned appellation); "po²tsu³fu⁴" {"/bue²zu³fu⁴/"}†	(*a*) tsu³fu⁴huo⁴wai⁴tsu³fu⁴tê⁰, nien²chi⁰ pi³t'a¹ta⁴tê⁰, nan²hsing⁴p'ing²pei⁴ p'ang²hsi⁴hsüeh³ch'in¹ "grandfather's elder male collateral blood-relation of the same generation as himself" (*b*) tsu³fu⁴huo⁴wai⁴tsu³fu⁴fu⁴mu³tê⁰ nien²chi⁰pi³t'a¹ta⁴tê⁰hai²tzŭ⁰ "grandfather's elder sibling" (*c*) shu²kung¹tê⁰ko¹ko⁰ "elder brother of grandfather's younger brother"
98. "shu²kung¹" {"/šu²guŋ¹/"} "grandfather's younger brother" *syn.:* "shu²wêng¹" {"/šu²uŋ¹/"} (old-fashioned appellation); "shu²tsu³fu⁴" {"/šu²zu³fu⁴/"}	(*a*) tsu³fu⁴huo⁴wai⁴tsu³fu⁴tê⁰, nien² chi⁰pi³t'a¹hsiao³tê⁰, nan²hsing⁴ p'ing²pei⁴p'ang²hsi⁴hsüeh³ch'in¹ "grandfather's younger male collateral blood-relation of the same generation as himself" (*b*) tsu³fu⁴huo⁴wai⁴tsu³fu⁴fu⁴mu³tê⁰, nien²chi⁰pi³t'a¹hsiao³tê⁰hai²tzŭ⁰ "grandfather's younger sibling" (*c*) po²kung¹tê⁰ti⁴ti⁰ "younger brother of grandfather's elder brother"
99. "ku¹p'o²" {"/gu¹pue²/"} "grandfather's sister" *syn.:* "ku¹tsu³mu³" {"/gu¹zu³mu³/"}	(*a*) tsu³fu⁴huo⁴wai⁴tsu³fu⁴tê⁰nü³hsing⁴ p'ing²pei⁴p'ang²hsi⁴hsüüe³ch'in¹ "grandfather's female collateral blood-relation of the same generation as himself" (*b*) tsu³fu⁴huo⁴wai⁴tsu³fu⁴fu⁴mu³tê⁰ hai²tzŭ⁰ "child of grandfather's parents" (*c*) chang³san¹pei⁴tê⁰tsu³hsien¹tê⁰ nü³êrh² "daughter of great-grand-parents"

† According to my informants the maternal and the paternal great-uncles receive the same appellation: "fu⁴ch'in⁰tê⁰po²fu⁴hen¹mu³ch'in⁰tê⁰po²fu⁴i²yang⁴chiao⁴: 'po² kung¹'".

ITEM	FEATURES
100. "chiu^{4}kung^{1}" {"/Ziu^{4}guŋ^{1}/"} "grandmother's brother" *syn.*: "chiu^{4}tsu^{3}fu^{4}" {"/Ziu^{4}zu^{3}fu^{4}/"}	(*a*) tsu^{3}mu^{3}huo^{4}wai^{4}tsu^{3}mu^{3}tê^{0}nan^{2} hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3} ch'in^{1} "grandmother's male collateral blood-relation of the same generation as herself" (*b*) wai^{4}tsêng^{1}tsu^{3}fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "son of paternal grandmother's or maternal grandparents' parents" (*c*) tsu^{3}mu^{3}huo^{4}wai^{4}tsu^{3}mu^{3}fu^{4}mu^{3}tê^{0} hai^{2}tzŭ^{0} "child of grandmother's parents"
101. "i^{2}po^{2}" {"/i^{2}pue^{2}/"} "grandmother's sister" *syn.*: "i^{2}tsu^{3}mu^{3}" {"/i^{2}zu^{3}mu^{3}/"}	(*a*) tsu^{3}mu^{3}huo^{4}wai^{4}tsu^{3}mu^{3}tê^{0}nü^{3} hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3} ch'in^{1} "grandmother's female collateral blood-relation of the same generation as herself" (*b*) wai^{4}tsêng^{1}tsu^{3}fu^{4}mu^{3}tê^{0}nü^{3}êrh^{2} "daughter of paternal grandmother's or maternal grandparents' parents" (*c*) tsu^{3}mu^{3}huo^{4}wai^{4}tsu^{3}mu^{3}fu^{4}mu^{3}tê^{0} hai^{2}tzŭ^{0} "child of grandmother's parents"
102. "po^{2}tsu^{3}mu^{3}" {"/bue^{2}zu^{3}mu^{3}/"} "wife of grandfather's elder brother"	(*a*) tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3}fu^{4}, nien^{2}chi^{0} pi^{3}t'a^{1}ta^{4}tê^{0}, p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of grandfather's elder collateral blood-relation of the same generation as grandfather" (*b*) tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3}fu^{4}fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}t'a^{1}ta^{4}tê^{0}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of grandfather's elder sibling"

ITEM	FEATURES
	(*c*) shu^{2}kung^{1}tê^{0}sao^{3}tzŭ^{0} "wife of grandfather's younger brother's elder brother"
103. "shu^{2}tsu^{3}mu^{3}" {"/šu^{2}zu^{3}mu^{3}/"} "wife of grandfather's younger brother" *syn.*: "shên^{3}p'o^{2}" {"/šen^{3}pue^{2}/"}	(*a*) tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3}fu^{4}tê^{0}, nien^{2}chi^{0} pi^{3}t'a^{1}hsiao^{3}tê^{0}, p'ing^{2}pei^{4}p'ang^{2} hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of grandfather's younger collateral blood-relation of the same generation as grandfather" (*b*) tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3}fu^{4}fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}t'a^{1}hsiao^{3}tê^{0}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of grandfather's younger sibling" (*c*) po^{2}kung^{1}tê^{0}ti^{4}hsi^{2} "wife of grandfather's elder brother's younger brother"
104. "ku^{1}tsu^{3}fu^{4}" {"/gu^{1}zu^{3}fu^{4}/"} "husband of grandfather's sister"	(*a*) tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3}fu^{4}tê^{0}p'ing^{2}pei^{4} p'ang^{2}hsi^{2}hsüeh^{3}ch'in^{1}tê^{0}chang^{4}fu^{0} "husband of grandfather's collateral blood-relation of the same generation as grandfather" (*b*) tsu^{3}fu^{4}huo^{4}wai^{4}tsu^{3}fu^{4}fu^{4}mu^{3}tê^{0} hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of grandfather's sibling" (*c*) chang^{3}san^{1}pei^{4}tê^{0}tsu^{3}hsien^{1}tê^{0}nü^{3} hsü^{4} "*husband of great-grandparents' daughter*"
105. "*chiu*^{4}p'o^{2}" {"/Ziu^{4}pue^{2}/"} "grandmother's brother's wife" *syn.*: "chiu^{4}tsu^{3}mu^{3}" {"/Ziu^{4}zu^{3}mu^{3}/"}	(*a*) tsu^{3}mu^{3}huo^{4}wai^{4}tsu^{3}mu^{3}tê^{0}p'ing^{2} pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1} tzŭ^{0} "wife of grandmother's collateral blood-relation of the same generation as grandmother" (*b*) wai^{4}tsêng^{1}tsu^{3}fu^{4}mu^{3}tê^{0}hsi^{2}fu^{4}êrh^{2} "daughter-in-law of paternal grand-

ITEM	FEATURES
	mother's or maternal grandparents' parents" (*c*) tsu^{3}mu^{3}huo^{4}wai^{4}tsu^{3}mu^{3}fu^{4}mu^{3} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of grandmother's parents' child"
106. "i^{2}kung^{1}" {"/i^{2}guŋ^{1}/"} "husband of grandmother's sister" *syn.*: "i^{2}tsu^{3}fu^{4}" {"/i^{2}zu^{3}fu^{4}/"}	(*a*) tsu^{3}mu^{3}huo^{4}wai^{4}tsu^{3}mu^{3}tê^{0}p'ing^{2} pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1}tê^{0}chang^{4} fu^{0} "husband of grandmother's collateral blood-relation of the same generation as grandmother" (*b*) wai^{4}tsêng^{1}tsu^{3}fu^{4}mu^{3}tê^{0}nü^{3}hsü^{4} "son-in-law of paternal grandmother's or maternal grandparents' parents" (*c*) tsu^{3}mu^{3}huo^{4}wai^{4}tsu^{3}mu^{3}fu^{4}mu^{3} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of grandmother's parents' child"
107. "t'ang^{2}po^{2}" {"/taŋ^{2}bue^{2}/"} "son of paternal grandfather's brother, older than one's own father"	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0} ta^{4}tê^{0}, nan^{2}hsing^{4}p'ing^{2}pei^{4}p'ang^{2} hsi^{4}hsüeh^{3}ch'in^{1} "father's male collateral blood-relation of the same generation as, but older than, father" (*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}, nien^{2} chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4}tê^{0}êrh^{2}tzŭ^{0} "grandfather's brother's son older than father" (*c*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0} êrh^{2}tzŭ^{0} "paternal grandfather's brother's son" (*d*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4}tê^{0}hai^{2}tzŭ^{0} "child of father's father's brother, older than one's own father"

ITEM	FEATURES
108. "t'ang^{2}shu^{2}" {"/taŋ^{2}šu^{2}/"} "son of paternal grandfather's brother, younger than one's own father"	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0} hsiao^{3}tê^{0}, nan^{2}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "father's male collateral blood-relation of the same generation as, but younger than, father" (*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}, nien^{2} chi^{0}pi^{3}fu^{4}ch'in^{0}hsiao^{3}tê^{0}êrh^{2}tzŭ^{0} "grandfather's brother's son younger than father" (*c*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}êrh^{2} tzŭ^{0} "paternal grandfather's brother's son" (*d*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}, nien^{2} chi^{0}pi^{3}fu^{4}ch'in^{0}hsiao^{3}tê^{0}hai^{2}tzŭ^{0} "child of father's father's brother, younger than one's own father"
109. "t'ang^{2}ku^{1}" {"/taŋ^{2}gu^{1}/"} "daughter of paternal grand-father's brother"	(*a*) fu^{4}ch'in^{0}tê^{0}nü^{3}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "father's female collateral blood-relation of the same generation as one's own father" (*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}nü^{3}êrh^{2} "daughter of grandfather's brother's son" (*c*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}hai^{2} tzŭ^{0} "child of paternal grandfather's brother"
110. "piao^{2}po^{2}" {"/biau^{3}bue^{2}/"} "son of paternal grandfather's sister or paternal grand-mother's sibling, older than one's own father"	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0} ta^{4}tê^{0}nan^{2}hsing^{4}p'ing^{2}pei^{4}p'ang^{2} hsi^{4}hsüeh^{3}ch'in^{1} "father's male collateral blood-relation of the same generation as, but older than one's own father" (*b*) fu^{4}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4}i^{2} ma^{1}tê^{0}êrh^{2}tzŭ^{0}

ITEM	FEATURES
	"son of father's father's sister, or of father's mother's sibling"
	(*c*) fu^{4}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4} i^{2}ma^{1}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4}tê^{0} hai^{2}tzŭ^{0} "child of father's father's sister or father's mother's sibling, older than one's own father"
111. "piao^{3}shu^{2}" {"/biau^{3}šu^{2}/"} "son of paternal grandfather's sister or paternal grandmother's sibling, younger than one's own father"	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0} hsiao^{3}tê^{0}nan^{2}hsing^{4}p'ing^{2}pei^{4}p'ang^{2} hsi^{4}hsüeh^{3}ch'in^{1} "father's male collateral blood-relation of the same generation as, but younger than, one's own father"
	(*b*) fu^{4}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4} i^{2}ma^{1}tê^{0}êrh^{2}tzŭ^{0} "son of father's father's sister, or of father's mother's sibling"
	(*c*) fu^{4}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4} i^{2}ma^{1}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4} tê^{0}, hai^{2}tzŭ^{0} "child of father's father's sister, or father's mother's sibling, younger than one's own father"
112. "piao^{3}ku^{1}" {"/biau^{3}gu^{1}/"} "daughter of paternal grandfather's sister or paternal grandmother's sibling"	(*a*) fu^{4}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "father's female collateral blood-relation of the same generation as father"
	(*b*) fu^{4}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4}i^{2} ma^{1}tê^{0}hai^{2}tzŭ^{0} "child of father's father's sister, or of father's mother's sibling"
113. "t'ang^{2}chiu^{4}" {"/taŋ^{2}Ziu^{4}/"} "son of maternal	(*a*) mu^{3}ch'in^{0}tê^{0}nan^{2}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "mother's male collateral blood-

ITEM	FEATURES
grandfather's brother"	relation of the same generation as mother" (*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}êrh^{2}tzŭ^{0} "grandfather's brother's son" (*c*) mu^{3}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}hai^{2} tzŭ^{0} "child of mother's father's brother"
114. "t'ang^{2}i^{2}" {"/taŋ^{2}i^{2}/"} "daughter of maternal grandfather's brother"	(*a*) mu^{3}ch'in^{0}tê^{0}nü^{3}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "mother's female collateral blood-relation of the same generation as mother" (*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}nü^{3}êrh^{2} "grandfather's brother's daughter" (*c*) mu^{3}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}hai^{2} tzŭ^{0} "child of mother's father's brother"
115. "piao^{3}chiu^{4}" {"/biau^{3}Ziu^{4}/"} "son of mother's father's sister or of mother's mother's sibling"	(*a*) mu^{3}ch'in^{0}tê^{0}nan^{2}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "mother's male collateral blood-relation of the same generation as mother" (*b*) mu^{3}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4} i^{2}ma^{1}tê^{0}hai^{2}tzŭ^{0} "child of mother's father's sister or of mother's mother's sibling"
116. "piao^{3}i^{2}" {"/biau^{3}i^{2}/"} "daughter of mother's sister or of mother's mother's sibling"	(*a*) mu^{3}ch'in^{0}tê^{0}nü^{3}hsing^{4}p'ing^{2}pei^{4} p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} "mother's female collateral blood-relation of the same generation as mother" (*b*) mu^{3}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0} huo^{4}i^{2}ma^{1}tê^{0}hai^{2}tzŭ^{0} "child of mother's father's sister or of mother's mother's sibling"

ITEM	FEATURES
117. "t'ang^{2}po^{2}mu^{3}" {"/taŋ^{2}bue^{2}mu^{3}/"} "daughter-in-law of paternal grandfather's brother, whose husband is older than one's father"	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4} tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} tê^{0}ch'i^{1}tzŭ^{0} "wife of father's collateral blood-relation of the same generation as, but older than, father"
	(*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}, nien^{2} chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4}tê^{0}, êrh^{2}tzŭ^{0}tê^{0} ch'i^{1}tzŭ^{0} "wife of grandfather's brother's son older than father"
	(*c*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}hsi^{2} fu^{4}êrh^{2} "daughter-in-law of paternal grandfather's brother"
	(*d*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}, nien^{2} chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4}tê^{0}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of child of father's father's brother, when that child is older than father"
118. "t'ang^{2}shu^{2}mu^{3}" {"/taŋ^{2}šu^{2}mu^{3}/"} "daughter-in-law of paternal grandfather's brother, whose husband is younger than father" *syn.*: "t'ang^{2}shên^{3} mu^{3}" {"/taŋ^{2}šen^{3}mu^{3}/"}	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0} hsiao^{3}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of father's collateral blood-relation of the same generation as, but younger than father"
	(*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}, nien^{2} chi^{0}pi^{3}fu^{4}ch'in^{0}hsiao^{3}tê^{0}êrh^{2}tzŭ^{0}tê^{0} ch'i^{1}tzŭ^{0} "wife of grandfather's brother's son younger than father"
	(*c*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}hsi^{2} fu^{4}êrh^{2} "daughter-in-law of paternal grandfather's brother"
	(*d*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}, nien^{2}

ITEM	FEATURES
	chi^{0}pi^{3}fu^{4}ch'in^{0}hsiao^{3}tê^{0}hai^{2}tzŭ^{0}tê^{0} p'ei^{4}ou^{3} "spouse of child of father's father's brother, when child is older than father"
119. "t'ang^{2}ku^{1}chang^{4}" {"/taŋ^{2}gu^{1}žaŋ^{4}/"} "son-in-law of paternal grandfather's brother" *syn.*: "t'ang^{2}ku^{1}fu^{1}" {"/taŋ^{2}gu^{1}fu^{1}/"}	(*a*) fu^{4}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}tê^{0}chang^{4}fu^{0} 11husband of father's collateral blood-relation of the same generation as father"
	(*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}nü^{3}hsü^{4} "son-in-law of grandfather's brother"
	(*c*) fu^{4}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}hai^{2} tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of paternal grandfather's brother's child"
120. "piao^{3}po^{2}mu^{3}" {"/biau^{3}bue^{2}mu^{3}/"} "wife of son of paternal grandfather's sister or paternal grandmother's sibling, when son is older than one's own father"	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4} tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3}ch'in^{1} tê^{0}ch'i^{1}tzŭ^{0} "wife of father's collateral blood-relation of the same generation as, but older than, father"
	(*b*) fu^{4}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4} i^{2}ma^{1}tê^{0}hsi^{2}fu^{4}êrh^{2} "daughter-in-law of father's father's sister or of father's mother's sibling"
	(*c*) fu^{4}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4}i^{2} ma^{1}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}ta^{4}tê^{0} hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of child of father's father's sister or of father's mother's sibling, when child is older than one's own father"
121. "piao^{3}shu^{2}mu^{3}" {"/biau^{3}šu^{2}K*mu*^{3}/"} "wife of son of	(*a*) fu^{4}ch'in^{0}tê^{0}, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0} hsiao^{3}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4}hsüeh^{3} ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0}

ITEM	FEATURES
paternal grandfather's sister or paternal grandmother's sibling, when son is younger than one's own father" *syn.:* "piao^{3}shên^{3}mu^{3}" {"/biau^{3}šen^{3}mu^{3}/"}	"wife of father's collateral blood-relation of the same generation as, but younger than father" (*b*) fu^{4}ch'in^{0}ku^{1}mu^{3}, chiu^{4}fu^{4}huo^{4}i^{2}ma^{1} tê^{0}hsi^{2}fu^{4}êrh^{2} "daughter-in-law of father's father's sister or father's mother's sibling" (*c*) fu^{4}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4}i^{2} ma^{1}tê, nien^{2}chi^{0}pi^{3}fu^{4}ch'in^{0}hsiao^{3} tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of child of father's father's sister, or father's mother's sibling, when child is younger than one's own father"
122. "piao^{3}ku^{1}chang^{4}" {"/biau^{3}gu^{1}žaŋ^{4}/"} "son-in-law of paternal grandfather's sister or paternal grandmother's sibling" *syn.:* "piao^{3}ku^{1}fu^{1}" {"/biau^{3}gu^{1}u^{1}/"}	(*a*) fu^{4}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}tê^{0}p'ei^{4}ou^{3} "husband of father's collateral blood-relation of the same generation" (*b*) fu^{4}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4}i^{2} ma^{1}tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of child of father's father's sister, or of father's mother's sibling"
123. "t'an^{2}chiu^{4}mu^{3}" {"/taŋ^{2}Ziu^{4}mu^{3}/"} "daughter-in-law of maternal grandfather's brother" *syn.:* "t'ang^{2}chiu^{4} ma^{1}" {"/taŋ^{2}Ziu^{4}ma^{1}/"}	(*a*) mu^{3}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of mother's collateral blood-relation of the same generation as mother" (*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}hsi^{2}fu^{4} êrh^{2} "grandfather's brother's daughter-in-law" (*c*) mu^{3}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}hai^{2}tzŭ^{0} tê^{0}p'ei^{4}ou^{3} "spouse of child of maternal grandfather's brother"

ITEM	FEATURES
124. "t'ang^{2}i^{2}chang^{4}" {"/taŋ^{2}i^{2}zaŋ^{4}/"} "son-in-law of maternal grandfather's brother"	(*a*) mu^{3}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}tê^{0}chang^{4}fu^{1} "husband of mother's collateral blood-relation of the same generation as mother" (*b*) po^{2}kung^{1}huo^{4}shu^{2}kung^{1}tê^{0}nü^{3}hsü^{4} "grandfather's brother's son-in-law" (*c*) mu^{3}ch'in^{0}po^{2}fu^{4}huo^{4}shu^{2}fu^{4}tê^{0}hai^{2} tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of child of one's own mother's father's brother"
125. "piao^{3}chiu^{4}mu^{3}" {"/biau^{3}Ziu^{4}mu^{3}/"} "daughter-in-law of mother's father's sister or of mother's mother's sibling" *syn.*: "piao^{3}chiu^{4} ma^{1}" {"/biau^{3}Ziu^{4}ma^{1}/"}	(*a*) mu^{3}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}tê^{0}ch'i^{1}tzŭ^{0} "wife of mother's collateral blood-relation of the same generation as mother" (*b*) mu^{3}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4} i^{2}ma^{1}tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of child of (one's own) mother's father's sister or of (one's own) mother's mother's sibling"
126. "piao^{3}i^{2}chang^{4}" {"/biau^{3}i^{2}žaŋ^{4}/"} "son-in-law of mother's father's sister or of mother's mother's sibling"	(*a*) mu^{3}ch'in^{0}tê^{0}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1}tê^{0}chang^{4}fu^{1} "husband of mother's collateral blood-relation of the same generation as mother" (*b*) mu^{3}ch'in^{0}ku^{1}mu^{3}tê^{0}, chiu^{4}fu^{4}tê^{0}huo^{4} i^{2}ma^{1}tê^{0}hai^{2}tzŭ^{0}tê^{0}p'ei^{4}ou^{3} "spouse of child of (one's own) mother's father's sister or of (one's own) mother's mother's sibling"
127. "yüeh^{4}fu^{4}" {"/ye^{4}fu^{4}/"} "wife's father"	(*a*) p'ei^{4}ou^{3}tê^{0}fu^{4}ch'in^{0} "father-in-law" (*b*) ch'i^{1}tzŭ^{0}tê^{0}chang^{3}i^{2}pei^{4}tê^{0}tsu^{3}hsien^{1} "wife's parent" (*c*) ch'i^{1}tzŭ^{0}tê^{0}nan^{2}tsu^{3}hsien^{1} "wife's male ancestor or progenitor"

ITEM	FEATURES
	(*d*) ch'i^{1}tzŭ^{0}tsu^{3}fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "son of wife's paternal grandparents"
128. "yüeh^{4}mu^{3}" {"/ye^{4}mu^{3}/"} "wife's mother"	(*a*) p'ei^{4}ou^{3}tê^{0}mu^{3}ch'in^{0} "mother-in-law" (*b*) ch'i^{1}tzŭ^{0}tê^{0}chang^{3}i^{2}pei^{4}tê^{0}tsu^{3}hsien^{1} "wife's parent" (*c*) ch'i^{1}tzŭ^{0}tê^{0}nü^{3}tsu^{3}hsien^{1} "wife's female ancestor or progenitor" (*d*) ch'i^{1}tzŭ^{0}wai^{4}tsu^{3}fu^{4}mu^{3}tê^{0}nü^{3}êrh^{2} "daughter of wife's maternal grandparents"
129. "kung^{1}kung^{1}" {"/guŋ^{1}guŋ^{1}/"} "husband's father"	(*a*) p'ei^{4}ou^{3}tê^{0}fu^{4}ch'in^{0} "father-in-law" (*b*) chang^{4}fu^{1}tê^{0}chang^{3}i^{2}pei^{4}tê^{0}tsu^{3} hsien^{1} "husband's parent" (*c*) chang^{4}fu^{1}tê^{0}nan^{2}tsu^{3}hsien^{1} "husband's male ancestor or progenitor" (*d*) chang^{4}fu^{1}tsu^{3}fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "son of husband's paternal grandparents"
130. "p'o^{2}p'o^{0}" {"/pue^{2}pue/"} "husband's mother"	(*a*) p'ei^{4}ou^{3}tê^{0}mu^{3}ch'in^{0} "mother-in-law" (*b*) chang^{4}fu^{1}tê^{0}chang^{3}i^{2}pei^{4}tê^{0}tsu^{3} hsien^{1} "husband's parent" (*c*) chang^{4}fu^{1}tê^{0}nü^{3}tsu^{3}hsien^{1} "husband's female ancestor or pronitor" (*d*) chang^{4}fu^{1}wai^{4}tsu^{3}fu^{4}mu^{3}tê^{0}nü^{3}êrh^{2} "daughter of husband's maternal grandparents"

ITEM	FEATURES
131. "ta^{4}chiu^{4}tzŭ^{0}" {"/da^{4}Ziu^{4}z/"} "wife's elder brother"	(*a*) ch'i^{1}tzŭ^{0}tê, nien^{2}chi^{0}pi^{3}t'a^{1}ta^{4}tê^{0}, nan^{2}hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "wife's male collateral blood-relation of the same generation as, but older than, herself" (*b*) yüeh^{4}fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "wife's brother" (*c*) yüeh^{4}fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}ch'i^{1} tzŭ^{0}ta^{4}tê^{0}hai^{2}tzŭ^{0} "wife's elder sibling" (*d*) p'ei^{4}ou^{3}tê^{0}ko^{1}ko^{0} "spouse's elder brother"
132. "hsiao^{3}chiu^{4}tzŭ^{0}" {"/Siau^{3}Ziu^{4}z/"} "wife's younger brother"	(*a*) ch'i^{1}tzŭ^{0}tê^{0}, nien^{2}chi^{0}pi^{3}t'a^{1}hsiao^{3} tê^{0}, nan^{2}hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "wife's male collateral blood-relation of the same generation as, but younger than, herself" (*b*) yüeh^{4}fu^{4}mu^{3}tê^{0}êrh^{2}tzŭ^{0} "wife's brother" (*c*) yüeh^{4}fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}ch'i^{1} tzŭ^{0}hsiao^{3}tê^{0}hai^{2}tzŭ^{0} "wife's younger sibling" (*d*) p'ei^{4}ou^{3}tê^{0}ti^{4}ti^{0} "spouse's younger brother"
133. "ta^{4}i^{2}tzŭ^{0}" {"/da^{4}i^{2}z/"} "wife's elder sister"	(*a*) ch'i^{1}tzŭ^{0}tê^{0}, nien^{2}chi^{0}pi^{3}t'a^{1}ta^{4}tê^{0}, nü^{3}hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "wife's female collateral blood-relation of the same generation as, but older than, herself" (*b*) yüeh^{4}fu^{4}mu^{3}tê^{0}nü^{3}êrh^{2} "daughter of wife's parents" (*c*) yüeh^{4}fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}ch'i^{1} tzŭ^{0}ta^{4}tê^{0}hai^{2}tzŭ^{0} "wife's elder sibling"

ITEM	FEATURES
	(*d*) p'ei^{4}ou^{3}tê^{0}chieh^{3}chieh^{0} "spouse's elder sister"
134. "hsiao^{3}i^{2}tzŭ^{0}" {"/Siau^{3}i^{2}z/"} "wife's younger sister"	(*a*) ch'i^{1}tzŭ^{0}tê^{0}, nien^{2}chi^{0}pi^{3}t'a^{1}hsiao^{3} tê^{0}, nü^{3}hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "wife's female collateral blood-relation of the same generation as, but younger than herself" (*b*) yüeh^{4}fu^{4}mu^{3}tê^{0}nü^{3}êrh^{2} "daughter of wife's parents" (*c*) yüeh^{4}fu^{4}mu^{3}tê^{0}, nien^{2}chi^{0}pi^{3}ch'i^{1} tzŭ^{0}hsiao^{3}tê^{0}hai^{2}tzŭ^{0} "wife's younger sibling" (*d*) p'ei^{4}ou^{3}tê^{0}chieh^{3}chieh^{0} "spouse's younger sister"
135. "ta^{4}po^{2}tzŭ^{0}" {"/da^{4}bue^{2}z/"} "husband's elder brother"	(*a*) chang^{4}fu^{0}tê^{0}, nien^{2}chi^{0}pi^{3}t'a^{1}ta^{4}tê^{0}, nan^{2}hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "husband's male collateral blood-relation of the same generation as, but older than himself" (*b*) kung^{1}kung^{1}p'o^{2}p'o^{2}tê^{0}êrh^{2}tzŭ^{0} "son of husband's parents" (*c*) kung^{1}kung^{1}p'o^{2}p'o^{0}tê^{0}, nien^{2}chi^{0} pi^{3}chang^{4}fu^{0}ta^{4}tê^{0}hai^{2}tzŭ^{0} "husband's elder sibling" (*d*) p'ei^{4}ou^{3}tê^{0}ko^{1}ko^{0} "spouse's elder brother"
136. "hsiao^{3}shu^{2}tzŭ^{0}" {"/Siau^{3}šu^{2}z/"} "husband's younger brother"	(*a*) chang^{4}fu^{0}tê^{0} nien^{2}chi^{0}pi^{3}t'a^{1}ta^{4}tê^{0} nan^{2}hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "husband's male collateral blood-relation of the same generation as, but younger than, himself" (*b*) kung^{1}kung^{1}p'o^{2}p'o^{0}tê^{0}êrh^{2}tzŭ^{0} "son of husband's parents"

ITEM	FEATURES
	(*c*) kung^{1}kung^{1}p'o^{2}p'o^{0}tê^{0}, nien^{2}chi^{0} pi^{3}chang^{4}fu^{0}hsiao^{3}tê^{0}hai^{2}tzŭ^{0} "husband's younger sibling"
	(*d*) p'ei^{4}ou^{3}tê^{0}ti^{4}ti^{0} "spouse's younger brother"
137. "ta^{4}ku^{1}tzŭ^{0}" {"/da^{4}gu^{1}z/"} "husband's elder sister"	(*a*) chang^{4}fu^{0}tê^{0}, nien^{2}chi^{0}pi^{3}t'a^{1}ta^{4}tê^{0} nü^{3}hsing^{4}p'ing^{2}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "husband's female collateral blood-relation of the same generation as, but older than, himself"
	(*b*) kung^{1}kung^{1}p'o^{2}p'o^{0}tê^{0}nü^{3}êrh^{2} "husband's sister"
	(*c*) kung^{1}kung^{1}p'o^{0}p'o^{2}tê^{0}, nien^{2}chi^{0} pi^{3}chang^{4}fu^{0}ta^{4}tê^{0}hai^{2}tzŭ^{0} "husband's elder sibling"
	(*d*) p'ei^{4}ou^{3}tê^{0}chieh^{3}chieh^{0} "spouse's elder sister"
138. "hsiao^{3}ku^{1}tzŭ^{0}" {"/Siau^{3}gu^{1}z/"} "husband's younger sister"	(*a*) chang^{4}fu^{0}tê^{0}, nien^{2}chi^{0}pi^{3}t'a^{1}hsiao^{3} tê^{0}nü^{3}hsing^{4}p'ing^{0}pei^{4}p'ang^{2}hsi^{4} hsüeh^{3}ch'in^{1} "husband's female collateral blood-relation of the same generation as, but younger than, himself"
	(*b*) kung^{1}kung^{1}p'o^{2}p'o^{0}tê^{0}nü^{3}êrh^{2} "husband's sister"
	(*c*) kung^{1}kung^{1}p'o^{2}p'o^{0}tê^{0}nien^{2}chi^{0}pi^{3} chang^{4}fu^{0}hsiao^{3}tê^{0}hai^{2}tzŭ^{0} "husband's younger sibling"
	(*d*) p'ei^{4}ou^{3}tê^{0}mei^{4}mei^{0} "spouse's younger sister"
139. "ch'i^{1}tzŭ^{0}" {"/Ci^{1}z/"} "wife" *syn.*: "fu^{1}jên^{2}" {"/fu^{1}ren^{2}/"}	(*a*) p'ei^{4}ou^{3} "spouse"
	(*b*) nü^{3}hsing^{4}p'ing^{2}pei^{4}tê^{0}yin^{1}ch'in^{1} "female relation by marriage of the same generation as oneself"

ITEM	FEATURES
in polite usage. *syn.*: "t'ai^{4}t'ai^{0}" {"/tai^{4}tai/"} (There is at least one homonym of "t'ai^{4} t'ai^{0}", used for addressing older, possibly married, women.)	
140. "chang^{4}fu^{0}" {"/žaŋ^{4}fu/"} "husband" *syn.*: "hsien^{1}shêng^{0}" {"/Sian^{1}šeŋ/"} in polite usage. (There are at least two homonyms of "hsien^{1}shêng^{0}", used in respectful address of men, and equivalent to "lao^{3}shih^{4}" ("teacher") respectively.)	(*a*) p'ei^{4}ou^{3} "spouse" (*b*) nan^{2}hsing^{4}p'ing^{2}pei^{4}tê^{0}yin^{1}ch'in^{1} "male relation by marriage of the same generation as oneself"

Renderings of Items appearing in the Diagrams but not among the List of Items and Features

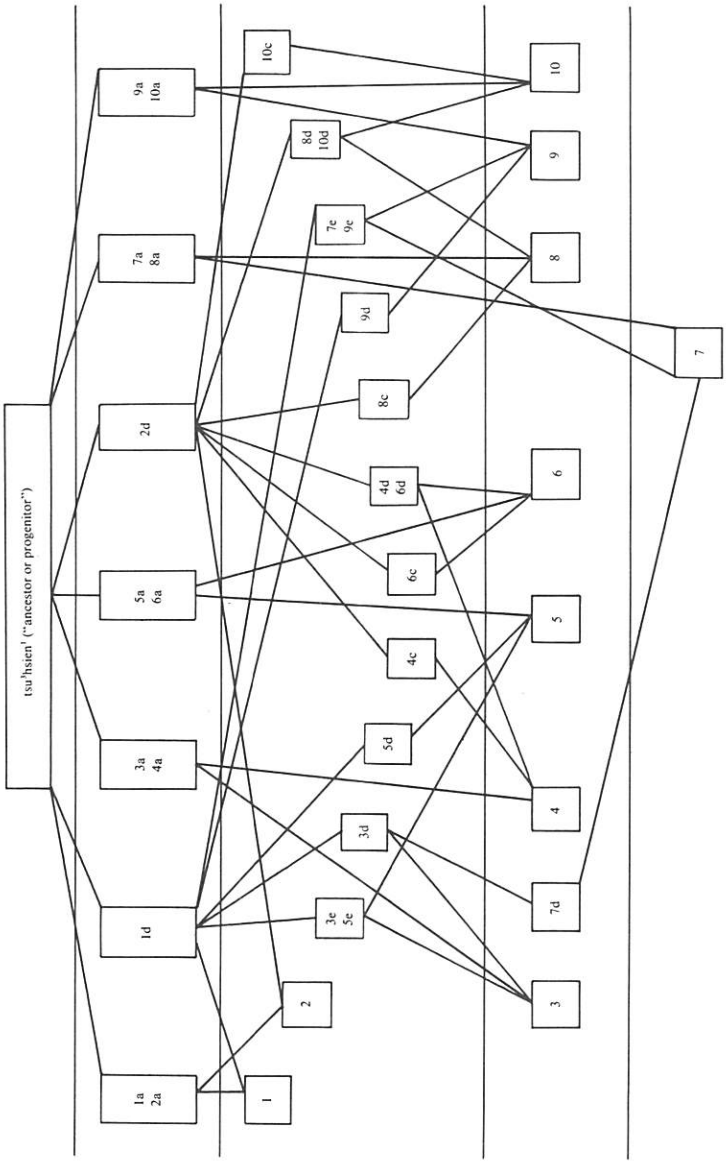
1. "direct descendant two generations removed"
2. "direct descendant three generations removed"
3. "spouse of direct descendant two generations removed"
4. "spouse of direct descendant three generations removed"
5. "collateral blood relation of the same generation"
6. "collateral blood relation of the same generation, but older than oneself"
7. "male collateral blood relation"
8. "female collateral blood relation"

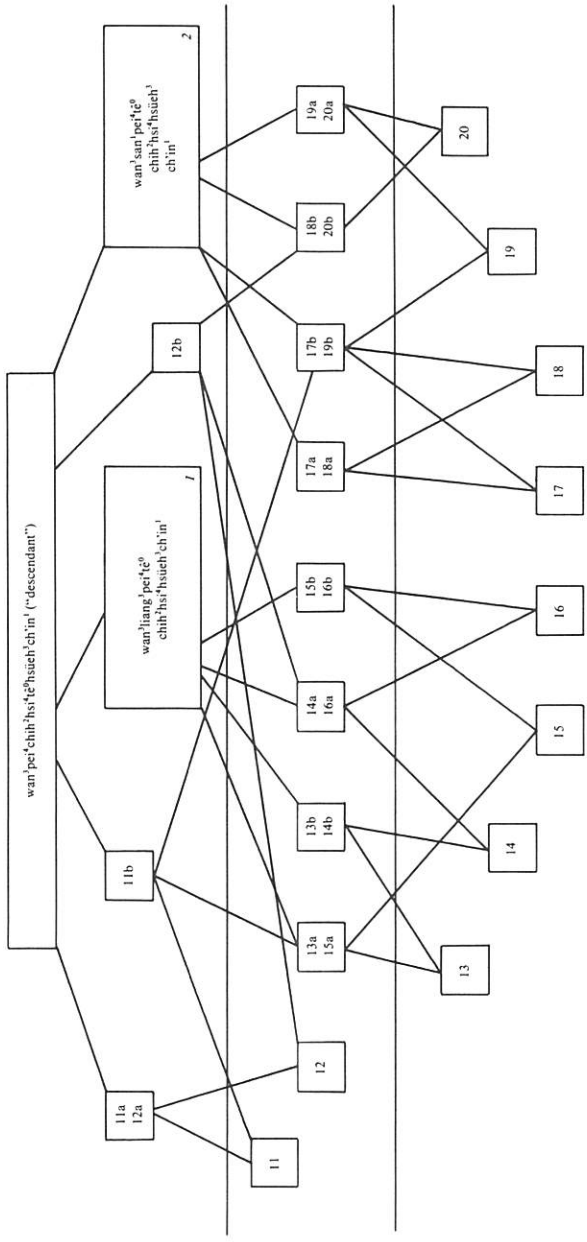
9. "collateral blood relation of the same generation, but younger than oneself"
10. "spouse of collateral blood relation of the same generation"
11. "spouse of collateral blood relation of the same generation, but older than oneself"
12. "wife of collateral blood relation"
13. "husband of collateral blood relation"
14. "spouse of collateral blood relation of the same generation, but younger than oneself"
15. "collateral blood relation one generation below oneself"
16. "spouse of collateral blood relation one generation below oneself"
17. "collateral blood relation two generations below oneself"
18. "spouse of collateral blood relation two generations below oneself"
19. "father's collateral blood relation of his own generation"
20. "father's collateral blood relation of his own generation, but older than father"
21. "father's male collateral blood relation of his own generation"
22. "father's collateral blood relation of his own generation, but younger than father"
23. "spouse of father's collateral blood relation of his own generation"
24. "spouse of father's collateral blood relation of his own generation, but older than father"
25. "wife of father's collateral blood relation of his own generation"
26. "spouse of father's collateral blood relation of the same generation, but younger than father"
27. "mother's collateral blood relation of her own generation"
28. "spouse of mother's collateral blood relation of her own generation"
29. "collateral blood relation two generations above oneself"
30. "collateral blood relation two generations above oneself, and older than grandfather"
31. "male collateral blood relation two generations above oneself"
32. "collateral blood relation two generations above oneself, and younger than grandfather"
33. "grandfather's collateral blood relation of his own generation"
34. "female collateral blood relation two generations above oneself"

35. "grandmother's collateral blood relation of her own generation"
36. "grandfather's collateral blood relation of his own generation, but older than grandfather"
37. "grandfather's male collateral blood relation of his own generation"
38. "grandfather's collateral blood relation of his own generation, but younger than grandfather"
39. "spouse of collateral blood relation two generations above oneself"
40. "spouse of collateral blood relation two generations above oneself and older than grandfather"
41. "wife of collateral blood relation two generations above oneself"
42. "spouse of collateral blood relation two generations above oneself, and younger than grandfather"
43. "spouse of grandfather's collateral blood relation of his own generation"
44. "husband of collateral blood relation two generations above oneself"
45. "spouse of grandmother's collateral blood relation of her own generation"
46. "spouse of grandfather's collateral blood relation of his own generation, but older than grandfather"
47. "wife of grandfather's collateral blood relation of his own generation"
48. "spouse of grandfather's collateral blood relation of his own generation, but younger than grandfather"
49. "wife's blood relation"
50. "wife's ancestor or progenitor"
51. "wife's collateral blood relation"
52. "wife's male blood relation"
53. "wife's female blood relation"
54. "wife's collateral blood relation of her own generation"
55. "wife's male collateral blood relation"
56. "wife's female collateral blood relation"
57. "wife's collateral blood relation of her own generation, but younger than herself"
58. "wife's collateral blood relation of her own generation, but older than herself"
59. "wife's male collateral blood relation of her own generation"

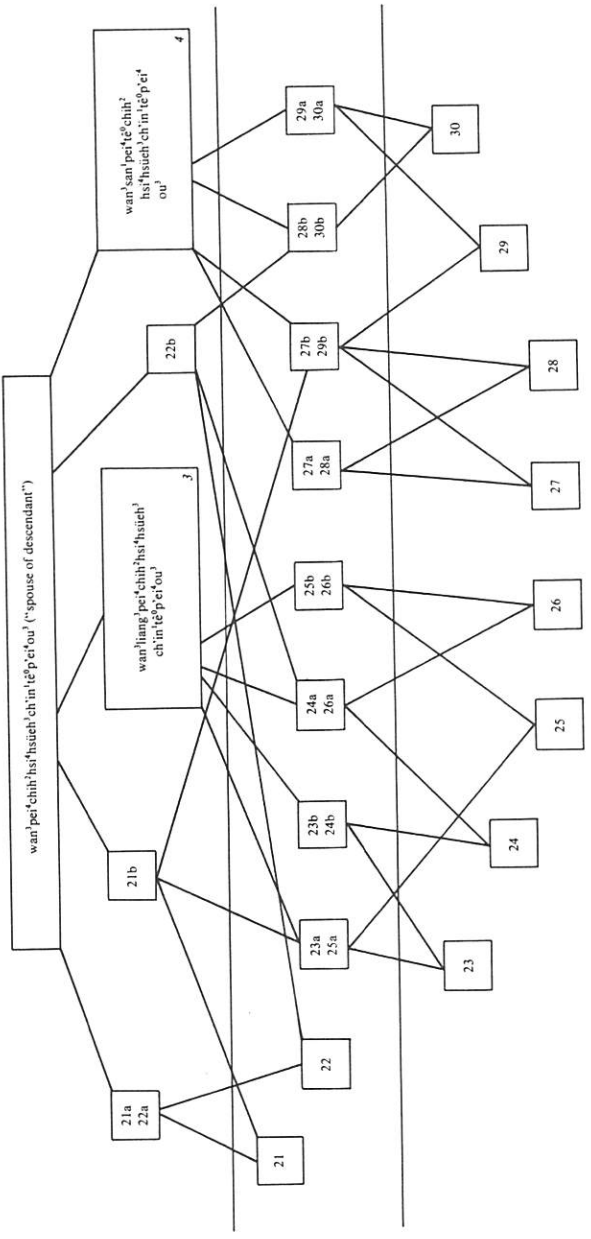
60. "wife's female collateral blood relation of her own generation"
61. "husband's blood relation"
62. "husband's ancestor or progenitor"
63. "husband's collateral blood relation"
64. "husband's male blood relation"
65. "husband's female blood relation"
66. "husband's collateral blood relation of his own generation"
67. "husband's male collateral blood relation"
68. "husband's female collateral blood relation"
69. "husband's collateral blood relation of his own generation, but younger than himself"
70. "husband's collateral blood relation of his own generation, but older than himself"
71. "husband's male collateral blood relation of his own generation"
72. "husband's female collateral blood relation of his own generation"
73. "spouse's relative or kinsman"
74. "blood relation"
75. "kinsman of one's own generation"
76. "kinsman of an older generation than oneself"
77. "kinsman of a younger generation than oneself"
78. "husband's relative or kinsman"
79. "spouse's blood relation"
80. "wife's relative or kinsman"
81. "direct-line blood relation"
82. "collateral blood relation"
83. "blood relation of some generation older than oneself"
84. "blood relation of some generation younger than oneself"
85. cf. 61
86. cf. 49
87. "ancestor or progenitor"
88. cf. 5
89. "descendant"
90. "collateral blood relation of some generation older than oneself"
91. "collateral blood relation of some generation younger than oneself"
92. "collateral blood relation one generation older than oneself"
93. cf. 29

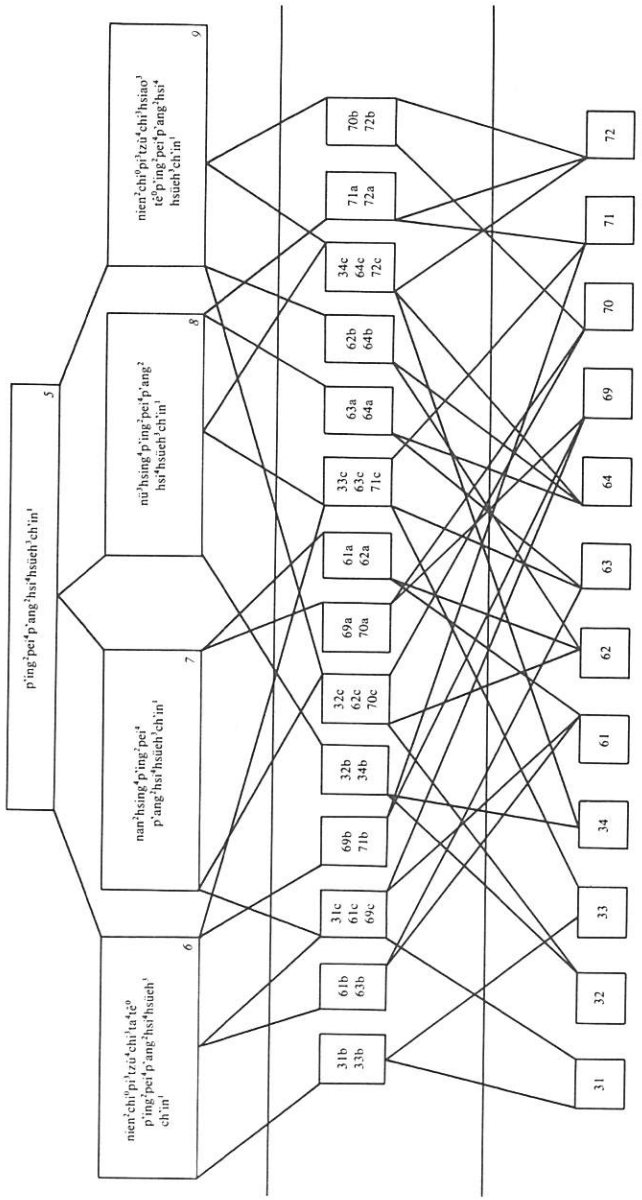
94. cf. 15
95. cf. 17
96. cf. 19
97. cf. 27
98. cf. 75
99. "relation by marriage"
100. cf. 76
101. cf. 77
102. "spouse of direct-line blood relation"
103. "relation by marriage, belonging to one's own generation"
104. "spouse of collateral blood relation"
105. "spouse of blood relation of some generation older than oneself"
106. "spouse of blood relation of some generation younger than oneself"
107. cf. 10
108. "spouse of collateral blood relation of some generation older than oneself"
109. "spouse of collateral blood relation of some generation younger than oneself"
110. "spouse of descendant"
111. cf. 39
112. "spouse of collateral blood relation one generation above oneself"
113. cf. 16
114. cf. 18
115. cf. 23
116. cf. 28

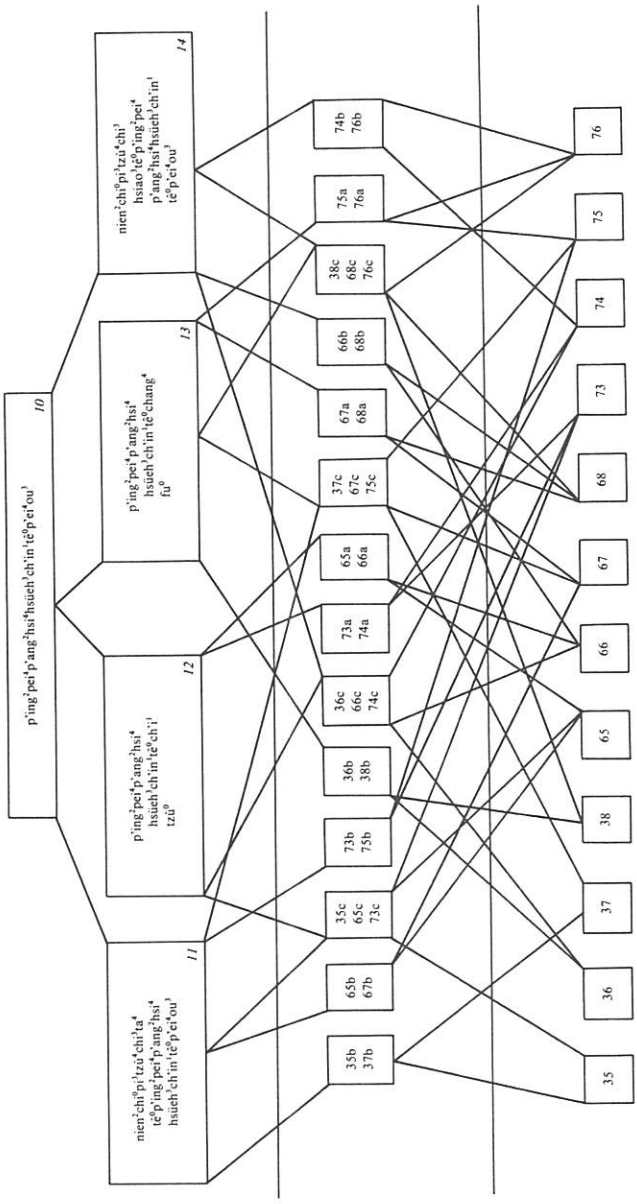

tsu²hsien¹ ("ancestor or progenitor")
1a 2a
1d
3a 4a
5a 6a
2d
7a 8a
9a 10a
1
2
3e 5e
3d
5d
4c
6c
4d 6d
9d
8c
7e 9e
8d 10d
10c
3
7d
4
5
6
7
8
9
10

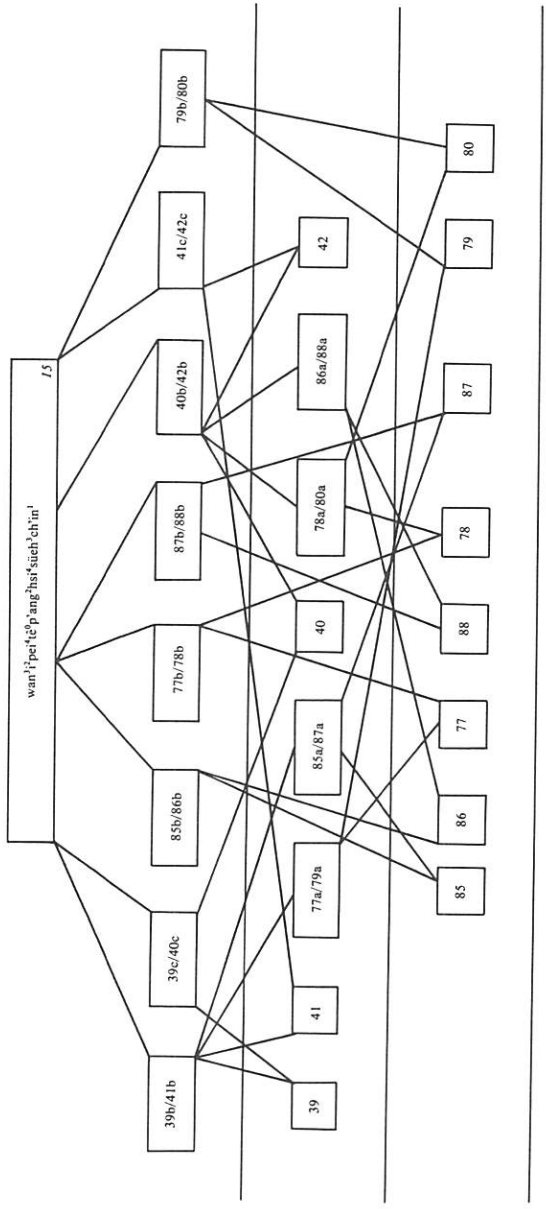


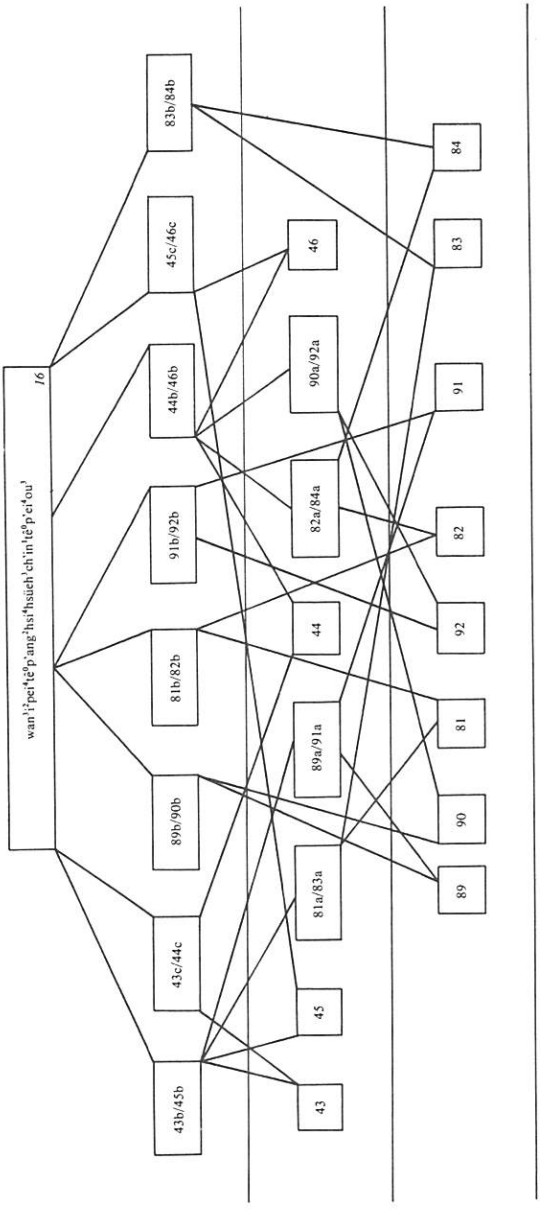
For italicized numbers see the list of English renderings on pp. 282–286.

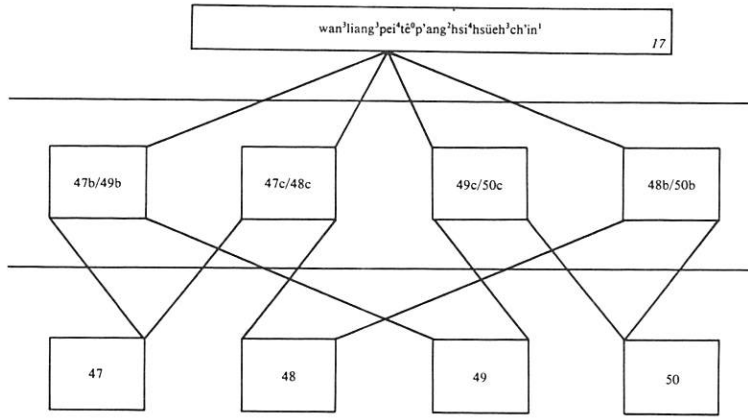

wan⁴pei⁴chih²hsi⁴hsueh¹ch'in¹tê⁰p'ei⁴ou³ ("spouse of descendant")
wan¹liang²pei⁴chih²hsi⁴hsieh¹ ch'in¹tê⁰p'ei⁴ou³
3
wan¹san¹pei⁴tê⁰chih² hsi⁴hsueh¹ch'in¹tê⁰p'ei⁴ ou³
4
21a 22a
21
22
21b
23a 25a
23
23b 24b
24
22b
24a 26a
25
25b 26b
26
27a 28a
27
27b 29b
28
28b 30b
29
29a 30a
30

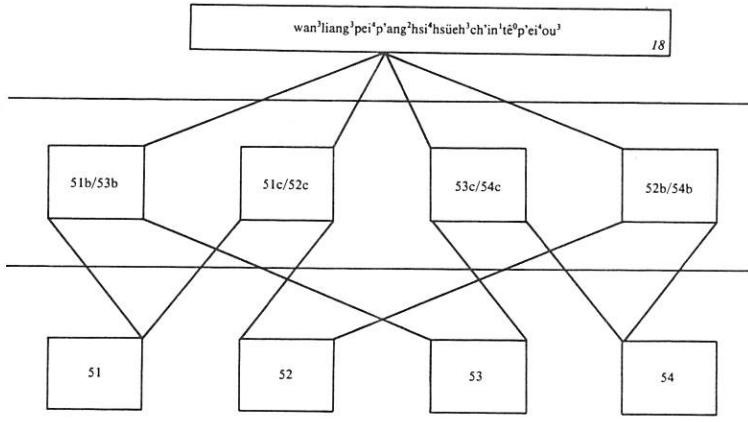

p'ing²pei²p'ang²hsi⁴hsueh²ch'in¹
5
nan²hsing²p'ing²pei²
p'ang²hsi⁴hsueh²ch'in¹
7
nü³hsing²p'ing²pei²p'ang²
hsi⁴hsueh²ch'in¹
8
nien²ch'ü⁰pi³tzü⁴chi³hsiao³
tê⁰p'ing²pei²p'ang²hsi⁴
hsueh²ch'in¹
9
nien²ch'ü⁰pi³tzü⁴chi³ta⁴tê⁰
p'ing²pei²p'ang²hsi⁴hsueh¹
ch'in¹
6
31b
33b
61b
63b
31c
61c
69c
69b
71b
32b
34b
32c
62c
70c
69a
70a
61a
62a
33c
63c
71c
63a
64a
62b
64b
34c
64c
72c
71a
72a
70h
72b
31
32
33
34
61
62
63
64
69
70
71
72

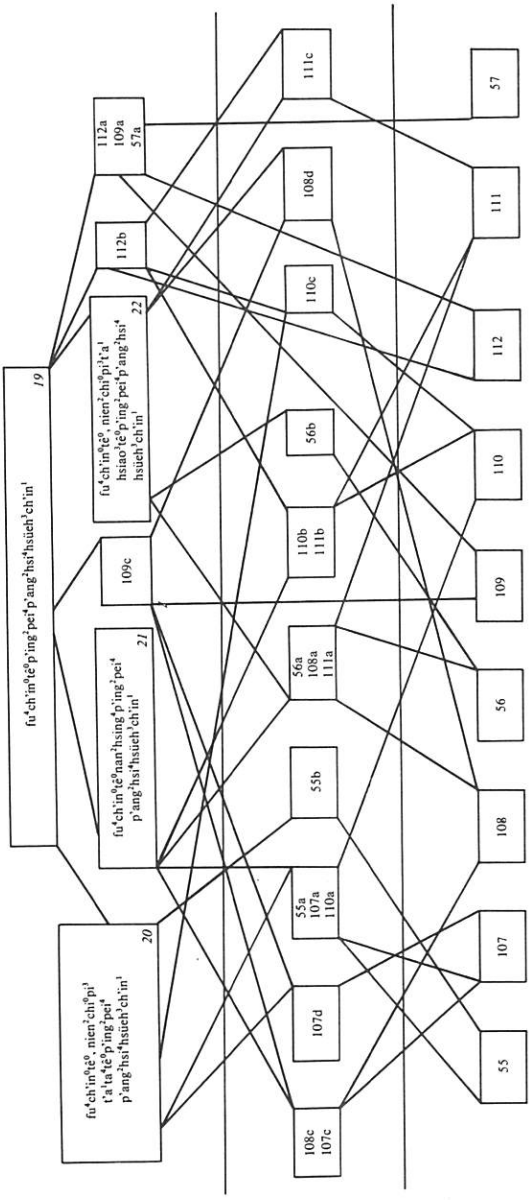

p'ing²pei¹p'ang²hsi¹hsüeh²ch'in¹tê⁰p'ei⁴ou³
10
nien²ch'i⁰pi¹tzu³chi¹ta⁴
tê⁰p'ing²pei¹p'ang²hsi⁴
hsüeh²ch'in¹tê⁰p'ei⁴ou³
11
p'ing²pei¹p'ang²hsi⁴
hsüeh²ch'in¹tê⁰ch'i²
tzu⁰
12
p'ing²pei¹p'ang²hsi⁴
hsüeh²ch'in¹tê⁰chang⁴
fu⁰
13
nien²ch'i⁰pi¹tzu³chi¹
hsiao³tê⁰p'ing²pei⁴
p'ang²hsi⁴hsüeh²ch'in¹
tê⁰p'ei⁴ou³
14
35b 37b
65b 67b
35c 65c 73c
73b 75b
36b 38b
36c 66c 74c
73a 74a
65a 66a
37c 67c 75c
67a 68a
66b 68b
38c 68c 76c
75a 76a
74b 76b
35
36
37
38
65
66
67
68
73
74
75
76

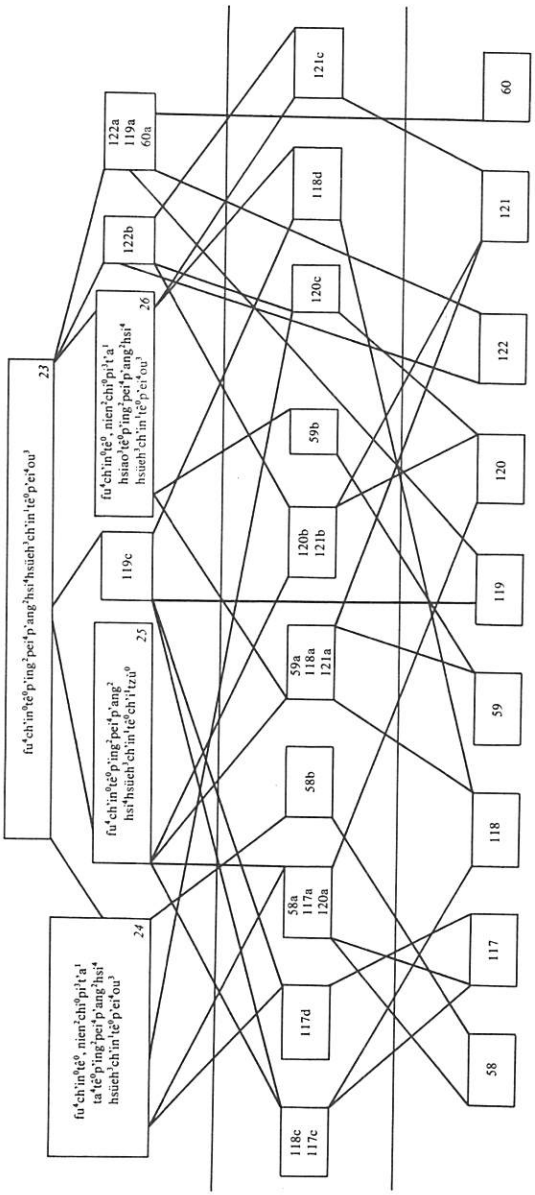

wan¹⁻²pei²te⁰p'ang²hsi⁴sueh²ch'in¹
15
39b/41b
39c/40c
85b/86b
77b/78b
87b/88b
40b/42b
41c/42c
79b/80b
39
41
77a/79a
85a/87a
40
78a/80a
86a/88a
42
85
86
77
88
78
87
79
80

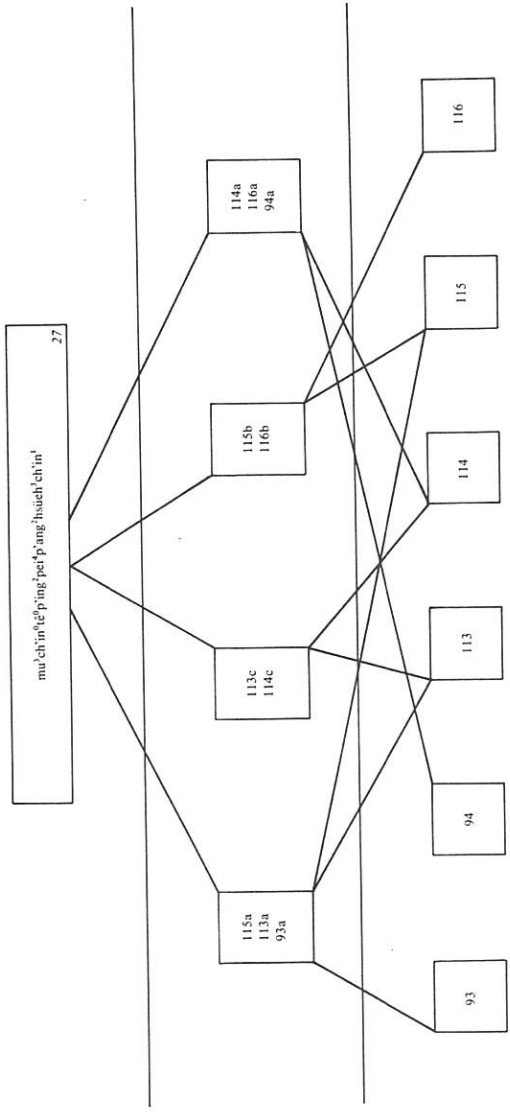

wan¹ʔper¹tɛ⁰p'ang²hsi⁴hsüeh¹ch'in¹iɛ⁰p'ei⁴ou¹
16
43b/45b
43c/44c
89b/90b
81b/82b
91b/92b
44b/46b
45c/46c
83b/84b
43
45
81a/83a
89a/91a
44
82a/84a
90a/92a
46
89
90
81
92
82
91
83
84

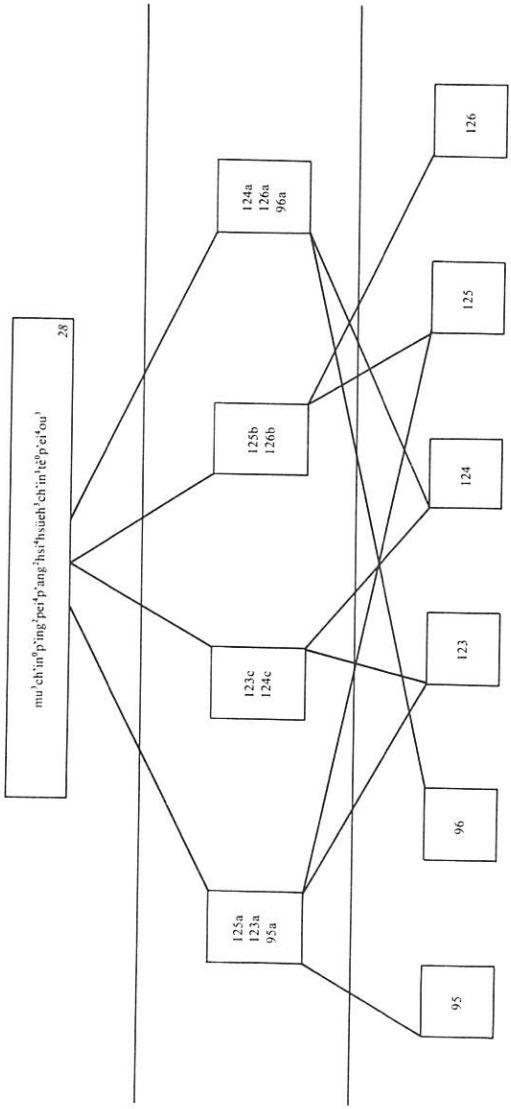

wan³liang³pei⁴tê⁰p'ang²hsi⁴hsüeh³ch'in¹
17
47b/49b
47c/48c
49c/50c
48b/50b
47
48
49
50


wan³liang³pei⁴p'ang²hsi⁴hsüeh³ch'in¹tê⁰p'ei⁴ou³
18
51b/53b
51c/52c
53c/54c
52b/54b
51
52
53
54

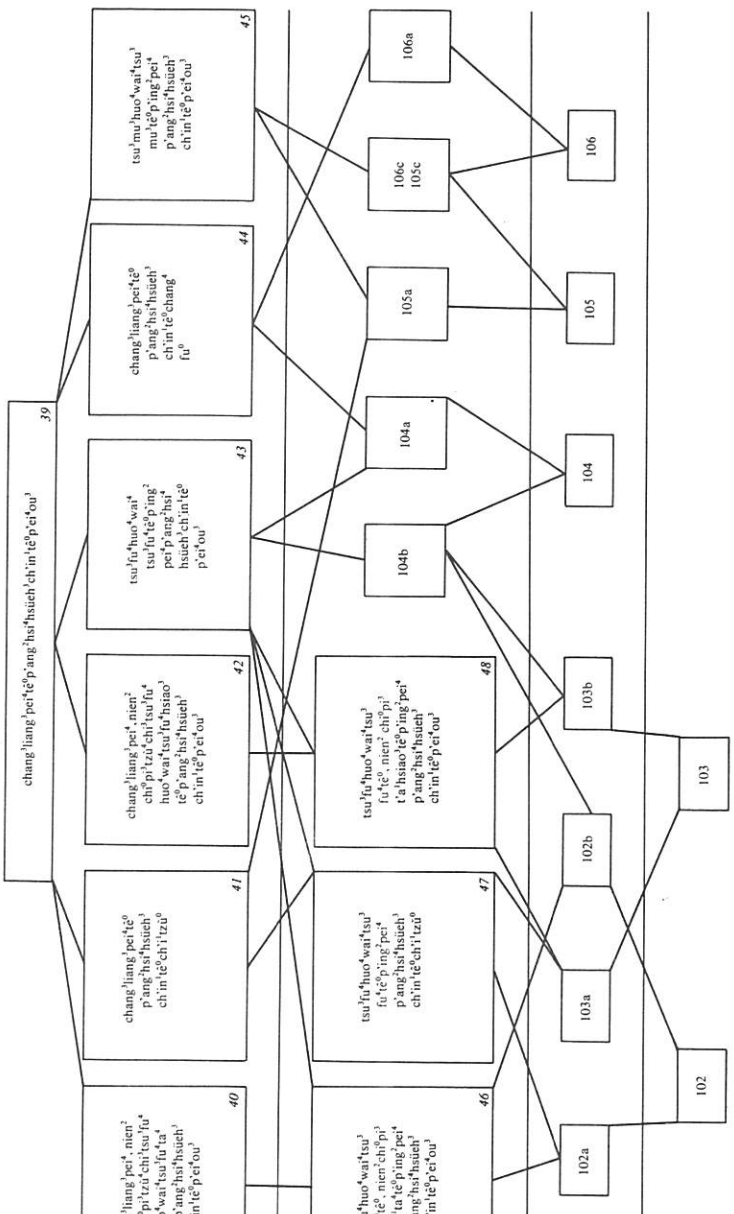

fu⁴ch'in⁰te⁰ p'ing²pei⁴ p'ang²hsi⁴hsueh²ch'in¹
19
fu⁴ch'in⁰te⁰, nien²chi⁰pi¹
t'a¹ta⁴te⁰p'ing²pei⁴
p'ang²hsi⁴hsueh²ch'in¹
20
fu⁴ch'in⁰te⁰nan²hsing⁴p'ing²pei⁴
p'ang²hsi⁴hsueh²ch'in¹
21
fu⁴ch'in⁰te⁰, nien²chi⁰pi¹t'a¹
hsiao³te⁰p'ing²pei⁴p'ang²hsi⁴
hsueh²ch'in¹
22
109c
112b
112a
109a
57a
111c
57
108d
110c
111
112
56b
110b
111b
110
109
56a
108a
111a
56
55b
108
55a
107a
110a
107
107d
55
108c
107c

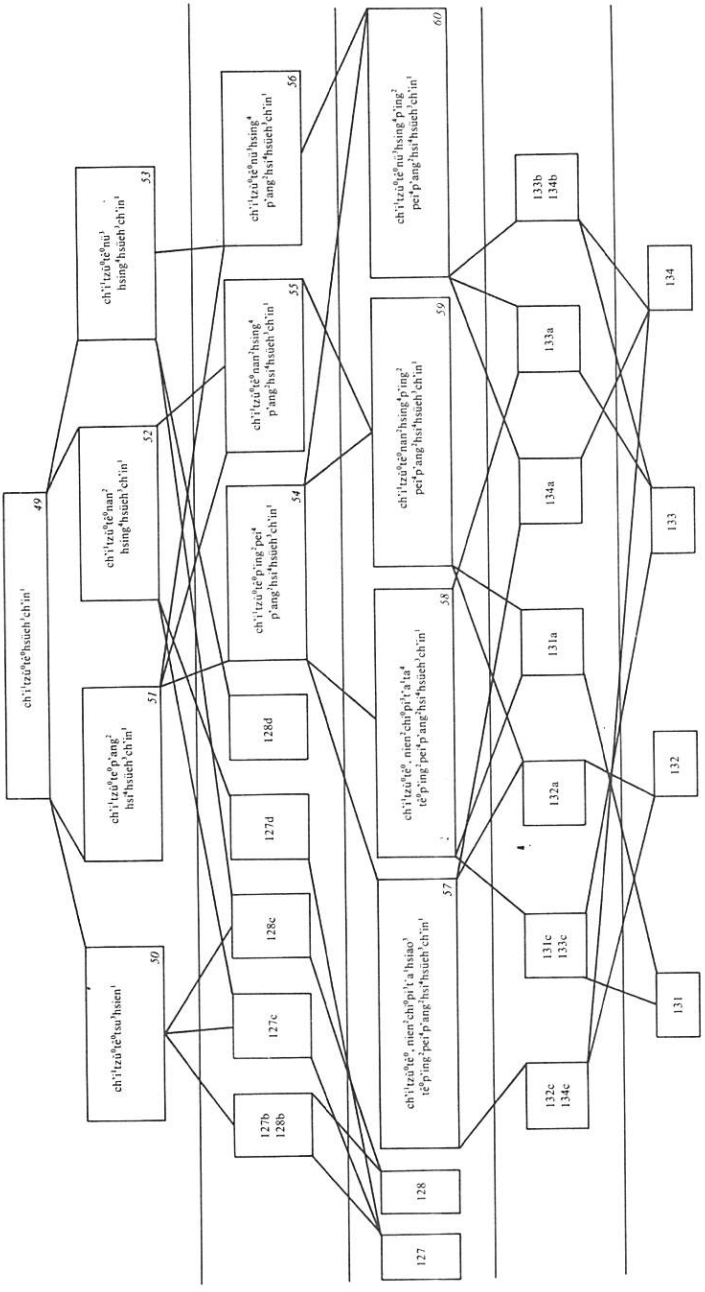

fu²ch'in²t'ê⁰, nien²ch'ü⁰pi²t'a¹
ta⁴tê⁰p'ing²pei²p'ang²hsi⁴
hsüeh²ch'in¹tê⁰p'ei⁴ou³
24
fu²ch'in²t'ê⁰p'ing²pei²p'ang²hsi⁴hsüeh²ch'in¹tê⁰p'ei⁴ou³
23
fu²ch'in²t'ê⁰p'ing²pei²p'ang²
hsi⁴hsüeh²ch'in¹tê⁰ch'i²tzu⁰
25
fu²ch'in²t'ê⁰, nien²ch'ü⁰pi²t'a¹
hsiao³tê⁰p'ing²pei²p'ang²hsi⁴
hsüeh²ch'in¹tê⁰p'ei⁴ou³
26
118c
117c
117d
58a
117a
120a
58b
59a
118a
121a
120b
121b
59b
120c
118d
121c
122a
119a
60a
122b
119c
58
117
118
59
119
120
122
121
60

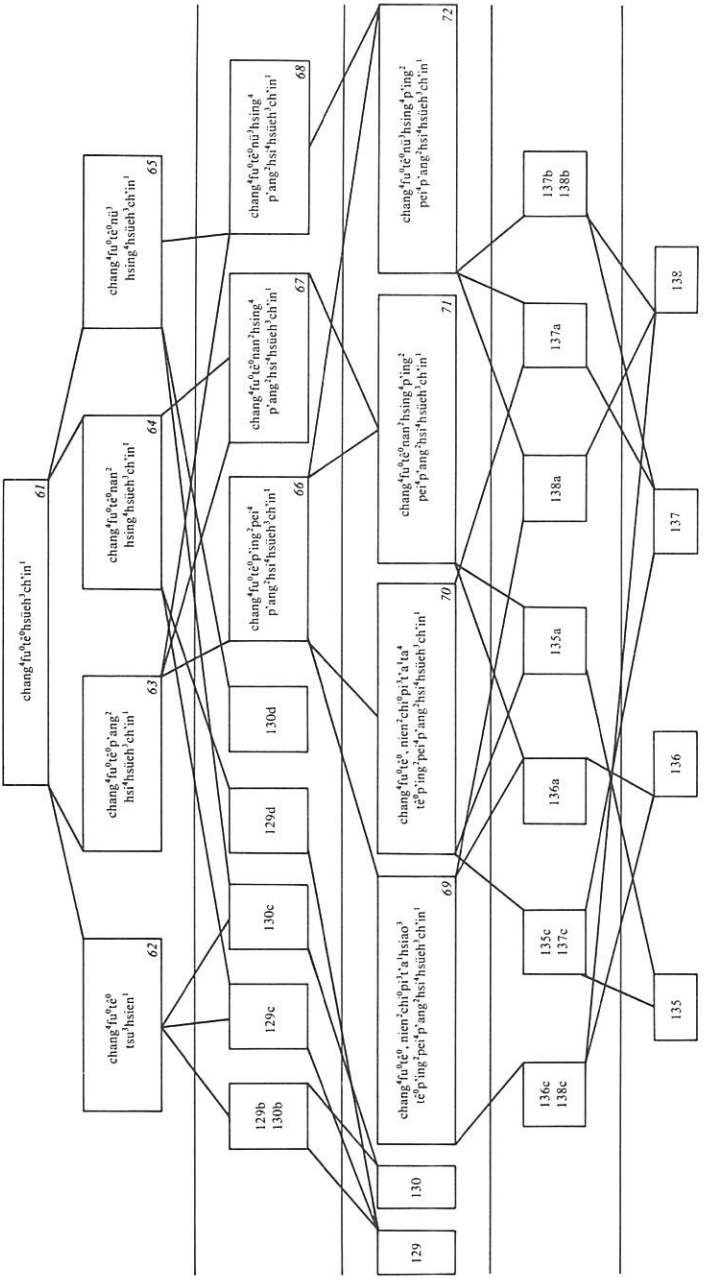

mu¹ch'in⁶tg⁶p'ing²pei⁴p'ang²hsüeh¹ch'in¹ 27
114a 116a 94a
115b 116b
113c 114c
115a 113a 93a
116
115
114
113
94
93


mu¹ ch'i¹ n⁹ ying² pei² p'ang² hsi² hsüeh² ch'in² ts⁹ p'ei² ou¹
28
124a
126a
96a
125b
126b
123c
124c
125a
123a
95a
126
125
124
123
96
95

chang¹liang³ pei⁴te⁰p'ang²hsi⁴hsüeh²ch'in¹
29
chang¹liang³pei⁴, nien²
chi⁵pi¹tzü³chi¹tsu³
fu⁴huo⁴wai⁴tsu³fu⁴
hsiao³te⁰p'ang²hsi⁴
hsüeh²ch'in¹
30
chang¹liang³pei⁴
te⁰nan²hsing²
p'ang²hsi⁴hsüeh¹
ch'in¹
31
chang¹liang³pei⁴, nien²
chi⁵pi¹tzü³chi¹tsu³
fu⁴huo⁴wai⁴tsu³fu⁴
hsiao³te⁰p'ang²hsi⁴
hsüeh²ch'in¹
32
tsu³fu⁴huo⁴wai⁴tsu³
fu⁴te⁰p'ing²pei⁴
p'ang²hsi⁴hsüeh³
ch'in¹
33
chang¹liang³
pei⁴te⁰nü³
hsing⁶p'ang²
hsi⁴hsüeh³
ch'in¹
34
tsu¹mu³huo⁴wai⁴tsu³
mu³te⁰p'ing²pei⁴
p'ang²hsi⁴hsüeh³
ch'in¹
35
tsu³fu⁴huo⁴wai⁴
tsu³fu⁴te⁰, nien²
chi⁵pi¹t'a¹
te⁰p'ing²pei⁴
p'ang²hsi⁴
hsüeh²ch'in¹
36
tsu³fu⁴huo⁴wai⁴
tsu³fu⁴te⁰nan²
hsing⁶p'ing²pei⁴
p'ang²hsi⁴
hsüeh²ch'in¹
37
tsu³fu⁴huo⁴wai⁴
tsu³fu⁴te⁰, nien²
chi⁵pi¹t'a¹
hsiao³te⁰p'ing²
pei⁴p'ang²hsi⁴
hsüeh²ch'in¹
38
99b
99a
100a
101c
100c
101a
99
100
101
98b
97b
98a
98
97
97a


chang¹liang²,pei⁴te⁰p'ang²hsi⁴hsueh²ch'in⁴te⁰p'ei⁴ou³
39
chang¹liang²,pei⁴,nien²
ch'i⁰pi¹tzu³ch'i³tsu²fu⁴
huo⁴wai⁴tsu²fu⁴ta⁴
te⁰p'ang²hsi⁴hsueh²
ch'in⁴te⁰p'ei⁴ou³
40
chang¹liang²,pei⁴te⁰
p'ang²hsi⁴hsueh²
ch'in⁴te⁰ch'i³tzi⁰
41
chang¹liang²,pei⁴,nien²
ch'i⁰pi¹tzu³ch'i³tsu²fu⁴
huo⁴wai⁴tsu²fu⁴hsiao³
te⁰p'ang²hsi⁴hsueh²
ch'in⁴te⁰p'ei⁴ou³
42
tsu²fu⁴huo⁴wai⁴,
tsu²fu⁴te⁰p'ing²
pei⁴p'ang²hsi⁴
hsueh²ch'in⁴te⁰
p'ei⁴ou³
43
chang¹liang²,pei⁴te⁰
p'ang²hsi⁴hsueh²
ch'in⁴te⁰chang⁴
fu⁰
44
tsu²mu²huo⁴wai⁴tsu²
mu⁴te⁰p'ing²pei⁴
p'ang²hsi⁴hsueh²
ch'in⁴te⁰p'ei⁴ou³
45
tsu²fu⁴huo⁴wai⁴tsu²
fu⁴te⁰,nien²ch'i⁰pi²
t'a¹ta⁴te⁰p'ing²pei⁴
p'ang²hsi⁴hsueh²
ch'in⁴te⁰p'ei⁴ou³
46
tsu²fu⁴huo⁴wai⁴tsu²
fu⁴te⁰p'ing²pei⁴
p'ang²hsi⁴hsueh²
ch'in⁴te⁰ch'i³tzi⁰
47
tsu²fu⁴huo⁴wai⁴tsu²
fu⁴te⁰,nien²ch'i⁰pi²
t'a¹hsiao³te⁰p'ing²pei⁴
p'ang²hsi⁴hsueh²
ch'in⁴te⁰p'ei⁴ou³
48
102a
102
103a
102b
103
103b
104b
104a
104
105a
105
106c
105c
106a
106


ch'i'tzu⁰te⁰hsueh'ch'in'
49
ch'i'tzu⁰te⁰p'ang²
hs₁²hsueh'ch'in'
51
ch'i'tzu⁰te⁰nan²
hsing⁴hsueh'ch'in'
52
ch'i'tzu⁰ge⁰mu³
hsing⁴hsueh'ch'in'
53
ch'i'tzu⁰ge⁰p'ing²pei⁴
p'ang¹hs₁⁴hsueh'ch'in'
54
ch'i'tzu⁰ge⁰nan²hsing⁴
p'ang¹hs₁⁴hsueh'ch'in'
55
ch'i'tzu⁰ge⁰mu³hsing⁴
p'ang¹hs₁⁴hsueh'ch'in'
56
ch'i'tzu⁰te⁰, nien²chi⁰pi⁴t'a⁴
te⁰p'ing²pei⁴p'ang²hs₁⁴hsueh'ch'in'
58
ch'i'tzu⁰te⁰nan²hsing⁴p'ing²
pei⁴p'ang²hs₁⁴hsueh'ch'in'
59
ch'i'tzu⁰ge⁰nu³hsing⁴p'ing²
pei⁴p'ang²hs₁⁴hsueh'ch'in'
60
ch'i'tzu⁰ge⁰, nien²chi⁰pi⁴t'a⁴hsiao³
te⁰p'ing²pei⁴p'ang²hs₁⁴hsueh'ch'in'
57
ch'i'tzu⁰ge⁰su¹hsien¹
50
127
128
127b
128b
127c
128c
127d
128d
131c
133c
131a
132a
134a
133a
133b
134b
132c
134c
131
132
133
134


chang⁴fu⁴te⁰hsüeh²ch'in¹ 61
chang⁴fu⁴te⁰ tsu³hsien¹ 62
chang⁴fu⁴te⁰p'ang² hsi⁴hsüeh²ch'in¹ 63
chang⁴fu⁴te⁰nan² hsing⁴hsüeh²ch'in¹ 64
chang⁴fu⁴te⁰nü³ hsing⁴hsüeh²ch'in¹ 65
chang⁴fu⁴te⁰p'ing²pei⁴ p'ang²hsi⁴hsüeh²ch'in¹ 66
chang⁴fu⁴te⁰nan²hsing⁴ p'ang²hsi⁴hsüeh²ch'in¹ 67
chang⁴fu⁴te⁰nü³hsing⁴ p'ang²hsi⁴hsüeh²ch'in¹ 68
chang⁴fu⁴te⁰, nien²ch'i⁰pi³t'a¹hsiao³ te⁰p'ing²pei⁴p'ang²hsi⁴hsüeh²ch'in¹ 69
chang⁴fu⁴te⁰, nien²ch'i⁰pi³t'a¹ta⁴ te⁰p'ing²pei⁴p'ang²hsi⁴hsüeh²ch'in¹ 70
chang⁴fu⁴te⁰nan²hsing⁴p'ing² pei⁴p'ang²hsi⁴hsüeh²ch'in¹ 71
chang⁴fu⁴te⁰nü³hsing⁴p'ing² pei⁴p'ang²hsi⁴hsüeh²ch'in¹ 72
129
130
129b 130b
129c
130c
129d
130d
135c 137c
136c 138c
136a
135a
138a
137a
137b 138b
135
136
137
138

ch'in¹ ch'i¹ ("relative; kinsman")
p'ei²ou¹tê⁰ch'in¹ ch'i¹ 73
hsüeh³ch'in¹ 74
p'ing²pei⁴tê⁰ ch'in¹ch'i¹ 75
chang³pei⁴tê⁰ ch'in¹ch'i¹ 76
wan¹pei⁴tê⁰ ch'in¹ch'i¹ 77
yin¹ch'in¹ see next diagram (66)
chang³fu⁴tê⁰ ch'in¹ch'i¹ 78
p'ei²ou¹tê⁰ hsüeh³ch'in¹ 79
ch'i¹tzu³tê⁰ ch'in¹ch'i¹ 80
chih³hsi⁴ hsüeh³ch'in¹ 81
p'ang²hsi⁴ hsüeh³ch'in¹ 82
chang³pei⁴ hsüeh³ch'in¹ 83
wan¹pei⁴hsüeh³ ch'in¹ 84
chang⁴fu⁴tê⁰ hsüeh³ch'in¹ 85
ch'i¹tzu³tê⁰ hsüeh³ch'in¹ 86
tsu³ hsien¹ 87
p'ing²pei⁴p'ang² hsi⁴hsüeh³ch'in¹ 88
wan¹pei⁴chih² hsi⁴hsüeh³ch'in¹ 89
chang³pei⁴p'ang² hsi⁴hsüeh³ch'in¹ 90
wan¹pei⁴p'ang² hsi⁴hsüeh³ch'in¹ 91
chang³yi²pei⁴tê⁰ p'ang²hsi⁴hsüeh³ch'in¹ 92
chang³liang³ pei⁴tê⁰p'ang² hsi⁴hsüeh³ ch'in¹ 93
wan¹i²pei⁴ tê⁰p'ang²hsi⁴ hsüeh³ch'in¹ 94
wan³liang³ pei⁴tê⁰p'ang² hsi⁴hsüeh³ ch'in¹ 95
fu⁴ch'in⁴tê⁰p'ing²pei⁴ p'ang²hsi⁴hsüeh³ ch'in¹ 96
mu⁴ch'in⁴tê⁰p'ing² pei⁴p'ang²hsi⁴ hsüeh³ch'in¹ 97

ch'in¹ch'i² ("relative, kinsman"): (continued)
p'ei⁴ou¹tɛ⁰ch'in¹ ch'i¹
see previous diagram (73 & 74)
hsüeh³ch'in¹
chih³hsi⁴hsüeh³ch'in¹ tɛ⁰p'ei⁴ou³
102
wan¹pei⁴tɛ⁰ch'in¹ ch'i¹
101
wan¹pei⁴hsüeh³ ch'in¹tɛ⁰p'ei⁴ou³
106
wan¹pei⁴chih³hsi⁴ hsüeh³ch'in¹tɛ⁰p'ei⁴ou³
110
chang¹pei⁴tɛ⁰ ch'in¹ch'i¹
100
chang¹pei⁴hsüeh³ ch'in¹tɛ⁰p'ei⁴ou³
105
chang¹pei⁴p'ang²hsi⁴ hsüeh³ch'in¹tɛ⁰p'ei⁴ou³
108
wan¹pei⁴p'ang²hsi⁴ hsüeh³ch'in¹tɛ⁰p'ei⁴ou³
109
wan¹liang²pei⁴tɛ⁰p'ang² hsi⁴hsüeh³ch'in¹tɛ⁰p'ei⁴ou³
114
yin¹ ch'in¹
99
p'ing²pei⁴tɛ⁰ ch'in¹ch'i¹
98
p'ang²hsi⁴hsüeh³ ch'in¹tɛ⁰p'ei⁴ou³
104
p'ing²pei⁴p'ang²hsi⁴ hsüeh³ch'in¹tɛ⁰p'ei⁴ou³
107
wan¹i²pei⁴tɛ⁰p'ang²hsi⁴ hsüeh³ch'in¹tɛ⁰p'ei⁴ou³
113
p'ing²pei⁴tɛ⁰yin¹ ch'in¹
103
chang¹i²pei⁴tɛ⁰p'ang²hsi⁴ hsüeh³ch'in¹tɛ⁰p'ei⁴ou³
112
mu⁴ch'in⁰p'ing²pei⁴ p'ang²hsi⁴hsüeh³ ch'in¹tɛ⁰p'ei⁴ou³
116
chang¹liang²pei⁴tɛ⁰p'ang² hsi⁴hsüeh³ch'in¹tɛ⁰p'ei⁴ou³
111
fu⁴ch'in⁰p'ing²pei⁴ p'ang²hsi⁴hsüeh³ ch'in¹tɛ⁰p'ei⁴ou³
115
139a 140a
139b
140b
139
140

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THE STRATEGY OF LINGUISTICS

J. W. F. Mulder and S. G. J. Hervey

The Strategy of Linguistics is a collection of papers – published and unpublished – written by the authors over a period of years during which they have been jointly engaged in laying the foundations for a linguistic theory and methodology now known as Axiomatic Functionalism. This theory can be seen as combining and emphasising the best features of Neo-Prague Functionalism and the hypothetico-deductivism of Glossematics. It uses the postulational method in fixing its major tenets in the form of axioms and definitions, and builds a body of theoretical and methodological theorems on this foundation. As part of its method, Axiomatic Functionalism contains a sophisticated but straightforward set of evaluation criteria that underlies the necessary decision procedures for judging linguistic theories and descriptions. The papers included in *The Strategy of Linguistics* cover a range from outlining the authors' views on the philosophy of linguistic science to presenting aspects of an integrated view on phonology, morphology, syntax, theory of indices and semantics. As such, *The Strategy of Linguistics* could serve as a fairly comprehensive textbook on Axiomatic Functionalism and as an adequate background to a methodology for describing languages.

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